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Reports of the National Juvenile Justice Assessment Centers

A National Assessment of Serious Juvenile Crime and The Juvenile Justice System:

The Need for a Rational Response

Volume IV
Economic Impact

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- Volume IV — Economic Impact.

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National Institute for Juvenile Justice and Delinquency Prevention

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A National Assessment of Serious Juvenile Crime and The Juvenile Justice System:

The Need for a Rational Response

Volume IV
Economic Impact

by
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Paul S. Alexander
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April 1980

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FOREWORD

The National Institute for Juvenile Justice and Delinquency Prevention established an Assessment Center Program in 1976 to partially fulfill the mandate of the Juvenile Justice and Delinquency Prevention Act of 1974, as amended, to collect and synthesize knowledge and information from available literature on all aspects of juvenile delinquency.

This report series provides insight into the critical area of how serious crime impacts on U.S. society and how the juvenile justice system responds to it.

The assessment efforts are not designed to be complete statements in a particular area. Rather, they are intended to reflect the state-of-knowledge at a particular time, including gaps in available information or understanding. Each successive assessment report then may provide more general insight on a cumulative basis when compared to other reports.

Due to differences in definitions and the lack of a readily available body of information, the assessment efforts have been difficult. In spite of such complexity, the persons who participated in the preparation of this report are to be commended for their contribution to the body of knowledge.

James C. Howell, Director
National Institute for Juvenile Justice and Delinquency Prevention

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PREFACE

As part of the Assessment Center Program of the National Institute for Juvenile Justice and Delinquency Prevention, topical centers were established to assess delinquency prevention (University of Washington), the juvenile justice system (American Justice Institute) and alternatives to the juvenile justice system (University of Chicago). In addition, a fourth assessment center was established at the National Council on Crime and Delinquency to integrate the work of the three topical centers.

This report, "A National Assessment of Serious Juvenile Crime and the Juvenile Justice System: The Need for a Rational Response-Volume IV: Economic Impact" has been developed by the American Justice Institute. It includes the findings and conclusions on the economic implications of serious juvenile crime on society. This volume is one of a series in this topical area. Other volumes are "Volume I: Summary," "Volume II: Definition; Characteristics of Incidents and Individuals; and Relationship to Substance Abuse," and "Volume III: Legislation; Jurisdiction; Program Interventions; and Confidentiality of Juvenile Records."

Other work of the American Justice Institute as part of the National Juvenile Justice System Assessment Center includes reports on the status offender, child abuse and neglect, and classification and disposition of juveniles.

In spite of the limitations of these reports, each should be viewed as an appropriate beginning in the establishment of a better framework and baseline of information for understanding and action by policymakers, operational personnel, researchers, and the public of how the juvenile justice system can contribute to desired child development and control.

Charles P. Smith, Director
National Juvenile Justice System Assessment Center

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TABLE OF CONTENTS

Section — Page

FOREWORD . . . iii
ACKNOWLEDGEMENTS . . . iv
PREFACE . . . v
LIST OF TABLES . . . xi
LIST OF FIGURES . . . xiv
EXECUTIVE SUMMARY . . . xv

Chapter

I. INTRODUCTION . . . 1
  DEFINITION OF TERMS: ASSESSMENT, THE SERIOUS JUVENILE OFFENDER, ECONOMIC IMPACT, AND COSTS . . . 3
  A CONCEPTUAL OVERVIEW . . . 6
  AN ECONOMIC OVERVIEW . . . 8
    The Distribution of Aggregate Serious Juvenile Crime . . . 11
  ADDITIONAL ECONOMICALLY RELEVANT PRODUCTION CHARACTERISTICS . . . 15
  ADDITIONAL ECONOMICALLY RELEVANT DISTRIBUTION CHARACTERISTICS . . . 19
II. DIRECT COSTS OF SERIOUS JUVENILE CRIME . . . 21
  PRIMARY DIRECT COSTS . . . 23
    Research and Legislation . . . 23
  DIRECT COSTS OF HOMICIDE: THE VALUE OF LIFE . . . 32
    The Discounted Present Value of Net Future Earnings Approach . . . 34
    The Human Capital Approach . . . 34
    Estimate of Net Losses Approach . . . 36
    Examination of the Implicit Values Placed on Injury or Loss of Life by the Political-Legal Process . . . 37
    Examination of Value of Injury or Threatened Injury as Determined Under Victim Compensation Programs . . . 38

Chapter Page

Imputation of Value of Injury for Loss of Life by Examination of Individual Willingness to Avoid or Pay to Avoid Risky, Potentially Injurious or Fatal Situations 38

Imputation of Direct Cost by Means of Econometric Analysis 39

THE CONSUMPTION OF CRIME 44

THE ECONOMIC MODEL COMPLETE 48

ESTIMATION OF THE DIRECT COSTS OF CRIME 52

PRIMARY DIRECT VIOLENT CRIME COSTS INCURRED BY WITNESSES 59

SECONDARY DIRECT COSTS OF SERIOUS CRIME 59

SUMMARY 67

III. INDIRECT COSTS OF SERIOUS JUVENILE CRIME EXCLUDING JUVENILE JUSTICE SYSTEM PROCESSING COSTS 69

INDIRECT COSTS OF CRIME: INCREASED ANNUAL HOUSEHOLD EXPENDITURES 70

Costs of Business Security 71

Insurance Costs 72

Corporate Compensation to Employee Victims . . 73

INDIRECT COSTS OF CRIME IN THE FORM OF INCREASED HOUSEHOLD TAXES 73

Unemployment Compensation 75

Welfare Payments 76

Victim Compensation Assistance Programs . . . 76

INDIRECT COSTS OF DIMINISHED NEIGHBORHOOD QUALITY OF LIFE AS REFLECTED IN DECREASED VALUES. 77

IV. INDIRECT COSTS: JUVENILE JUSTICE SYSTEM PROCESSING COSTS FOR THE SERIOUS JUVENILE OFFENDER 81

DEVELOPING COST ESTIMATES 81

AGGREGATE COSTS OF JUSTICE SYSTEM PROCESSING . . 83

AVERAGE JUVENILE JUSTICE SYSTEM PROCESSING COSTS 89

Police Processing Costs 92

Intake and Court Processing Costs 97

Chapter Page

Processing of Juveniles Charged With Serious Offenses in Adult Court 99

Police and Court Processsing Costs Combined . . 101

Detention Processing Costs 101

Average Detention Processing Output Costs . . . 109

Correctional Processing Costs 109

Input and Output Costs of Correctional Processing 117

THREE EXAMPLES OF AGGREGATE COSTS OF PROCESSING SERIOUS JUVENILE OFFENDERS 133

THE USE OF VOLUNTEERS AND PART-TIME STAFF IN JUVENILE JUSTICE SYSTEM PROCESSING 139

EXTERNAL COSTS 139

SUMMARY 140

V. PROGRAM IMPACT: EVALUATION OF INPUT AND OUTPUT EFFECTIVENESS, AND OUTCOME MEASUREMENT 145

PROGRAM IMPACT: AN EXPLORATION 145

EVALUATION: MEASUREMENT OF OUTPUTS AND OUTCOMES. . 146

THE PURPOSES OF EVALUATION 147

WHAT EVALUATION ENTAILS 149

EVALUATION DESIGN 150

EVALUATION SHORTCOMINGS 152

OUTCOME EFFECTIVENESS OF JUVENILE JUSTICE SYSTEM PROCESSING 153

General Effectiveness of Justice System Processing as a Whole: Incapacitation and Deterrence Considered 154

Outcome Effectiveness of Police Processing . . 157

Court Processing Innovations 167

Outcome Effectiveness of Detention Processing . 170

Outcome Effectiveness of Correctional Processing 171

Statewide Innovative Correction Processing: Massachusetts and Minnesota 173

SUMMARY 189

Chapter Page

VI. OUTCOME COST ANALYSIS: COST EFFECTIVENESS 187

ECONOMIC EFFICIENCY: OUTCOME COST EVALUATION . . . 187

CURRENT OUTCOME COST EVALUATION 191

VII. POLICY ISSUES, POLICY IMPLICATIONS, AND RECOMMENDATIONS FOR ADDITIONAL RESEARCH 201

IDENTIFYING THE EXTENT AND IMPORTANT CHARACTERISTICS OF PRODUCTION AND DISTRIBUTION OF SERIOUS JUVENILE CRIME 201

GENERAL LEVEL POLICY RECOMMENDATIONS AND RECOMMENDATIONS FOR ADDITIONAL RESEARCH 202

POLICY RECOMMENDATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH SPECIFIC TO JUVENILE JUSTICE SYSTEM PROCESSING 205

Police Processing Recommendations 205

Court Processing Recommendations 206

Detention Processing Recommendations 207

Correction Processing Recommendations 207

A FINAL, FREE MARKET RECOMMENDATION 208

VIII. SUMMARY AND CONCLUSIONS 211

Appendices

A. NATIONAL JUVENILE JUSTICE SYSTEM ASSESSMENT CENTER STAFF, ADVISORY COMMITTEE, AND PROGRAM MONITORS . . . 217

B. REFERENCES 221

C. FOOTNOTES AND COMPONENTS FOR ESTIMATES OF EXTERNAL COSTS ASSOCIATED WITH DRUG DIVERSION REFERRALS 235

LIST OF TABLES

Table		Page
1	CRIME IN THE NATION'S SCHOOLS	12
2	GANG MEMBER ARRESTS AS A PROPORTION OF JUVENILE ARRESTS: 1973-1974	14
3	AGGREGATE SERIOUS CRIME COMMITTED BY JUVENILES, 1976	16
4	JUVENILE POPULATION AND UNEMPLOYMENT	18
5	DISTRIBUTION OF SERIOUS CRIME BY ANNUAL HOUSEHOLD INCOME OF VICTIM, 1975	20
6	ESTIMATED NUMBER OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES REQUIRING MEDICAL ATTENTION BY TOTAL AND NET MEDICAL COSTS TO THE VICTIM, 1974	29
7	ESTIMATES OF UNREIMBURSED MEDICAL COSTS (NET COSTS) INCURRED BY VICTIMS, UNITED STATES, 1974	29
8	ESTIMATED NUMBER OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES RESULTING IN SOME LOSS OF WORK TIME, BY NUMBER AND VALUE OF WORK DAYS LOST, 1974	30
9	ESTIMATED VALUE OF TIME MISSED FROM WORK AS A RESULT OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES, 1974	30
10	CRIME COSTS ESTIMATES (DOLLAR ESTIMATES IN MILLIONS	31
11	COST ESTIMATE OF HOMICIDE	35
12	SELLIN-WOLFGANG INDEX OF CRIME	53
13	ESTIMATED RELATIONSHIP BETWEEN SELLIN-WOLFGANG SCORES AND PRIMARY DIRECT COST ESTIMATES (1977 DOLLARS)	55
14	AVERAGE PRIMARY DIRECT COSTS OF SERIOUS CRIME	56
15	PRIMARY DIRECT COSTS OF AGGREGATE SERIOUS JUVENILE CRIME ON A NATIONAL LEVEL FOR 1975 (1977 DOLLARS)	58
16	PRIMARY DIRECT COSTS OF SERIOUS CRIME ON A NATIONAL LEVEL FOR 1975 (1977 DOLLARS) . . .	60
17	PROGRAM BENEFITS	66

Table		Page
18	INDIRECT CRIME COSTS IN THE FORM OF AVERAGE INCREASED ANNUAL HOUSEHOLD EXPENDITURES	74
19	PERCENT DISTRIBUTION OF EXPENDITURE FOR THE CRIMINAL JUSTICE SYSTEM, BY LEVEL OF GOVERNMENT (FISCAL YEAR 1976) (Dollar amounts in thousands)	84
20	STATE AND LOCAL CRIMINAL JUSTICE EXPENDITURES PER HOUSEHOLD, FISCAL YEAR 1976 (1977 DOLLARS)	88
21	CONCEPTUAL OVERVIEW OF COST ANALYSIS	90
22	COMPARATIVE COSTS OF LAW ENFORCEMENT BY OFFENSE, BY AGENCY (1977 DOLLARS)	94
23	DERIVATION OF INTAKE AND PRE-DISPOSITION INVESTIGATION: MICHIGAN JUVENILE JUSTICE SERVICES (1977 DOLLARS)	98
24	INTAKE AND COURT PROCESSING COSTS (1977 DOLLARS)	100
25	COMBINED POLICE AND COURT PROCESSING COSTS (1977 DOLLARS)	102
26	NUMBER OF JUVENILES IN JAIL (1970) AND DETENTION (1971), BY STATE	104
27	LENGTH OF STAY IN DETENTION IN GEORGIA, BY TYPE OF OFFENSE (IN PERCENTAGES)	106
28	MASSACHUSETTS AVERAGE DAILY SECURE DETENTION COSTS, BY REGION (1977 DOLLARS)	108
29	COSTS PER JUVENILE PER DAY OF 11 ALTERNATIVE PROGRAMS AND OF SECURE DETENTION FACILITIES IN THE SAME JURISDICTIONS (1977 DOLLARS)	110
30	EXPENDITURES BY PUBLIC JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE	112
31	EXPENDITURES BY PRIVATE JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE	114
32	MASSACHUSETTS DEPARTMENT OF YOUTH SERVICES, AVERAGE DAILY EXPENDITURES ON JUVENILE DETENTION AND CORRECTIONAL PROCESSING, BY REGION AND TYPE (1977 DOLLARS)	118
33	PROCESSING COSTS OF PROBATION AND PAROLE (1977 DOLLARS)	120
34	COSTS OF COMMUNITY-BASED DAY-CARE (NON-RESIDENTIAL) PROGRAMS (1977 DOLLARS)	121

Table Page

35 AVERAGE DAILY COSTS PER CHILD OF COMMUNITY-BASED RESIDENTIAL PROGRAMS FOR SELECTED STATES, 1976 125

36 INPUT AND OUTPUT COSTS OF COMMUNITY-BASED PROGRAMS (1977 DOLLARS) 127

37 AVERAGE SECURE PROGRAM PROCESSING COSTS (1977 DOLLARS) 130

38 PER CAPITA COSTS FOR MAINE STATE CORRECTIONAL INSTITUTIONS (1977 DOLLARS) 132

39 SECONDARY EXPENDITURES FOR THE MAINE STATE CORRECTIONAL SYSTEM (1975 DOLLARS) 134

40 TOTAL EXPENDITURES (PRIMARY AND SECONDARY COSTS) MAINE STATE CORRECTIONAL INSTITUTIONS (1977) DOLLARS) 135

41 INPUT AND OUTPUT COSTS OF CORRECTIONAL PROCESSING (1977 DOLLARS) 136

42 AGGREGATE PROCESSING COSTS ASSOCIATED WITH THREE ILLUSTRATIVE CASES 138

43 COST ESTIMATES OF PROVIDING DRUG TREATMENT SERVICES (1977 DOLLARS) 141

44 COST ESTIMATES OF PROVIDING TREATMENT SERVICES TO ALCOHOLICS (1977 DOLLARS) 142

45 COST OF ESTIMATES OF PROVIDING MENTAL HEALTH SERVICES (1977 DOLLARS) 143

46 PERCENTAGES OF YOUTHS WHO RAN AWAY OR ALLEGEDLY COMMITTED NEW OFFENSES, FOR 14 ALTERNATIVE PROGRAMS 172

47 RECIDIVISM RATES FOR BOYS IN THE 1968 AND 1974 SAMPES BY REGION 175

48 RECIDIVISM CRITERIA BY FINAL PROGRAM TYPE: ONE-YEAR COURT REAPPEARANCE AND DISPOSITION DATA 176

49 SERIOUSNESS AND SEVERITY SCALES USED IN JUVENILE RECIDIVISM EVALUATION 194

50 COST PER CASE OF CORRECTIONAL ALTERNATIVES PROBATION/PAROLE, INSTITUTIONALIZATION AND RESIDENTIAL COMMUNITY CORRECTIONS (IN 1977 DOLLARS) 196

51 COST PER REDUCTION IN RECIDIVISM FOR JUVENILE CORRECTIONAL ALTERNATIVES 197

52 POLICY OPTIONS TO MAXIMIZE THE EFFICIENCY OF CORRECTIONAL ALTERNATIVES (IN 1977 DOLLARS). . 199

LIST OF FIGURES

Figure		Page
1	A CONCEPTUAL OVERVIEW	7
2	EXTENT OF INJURY AND MEDICAL ATTENTION INVOLVED IN PERSONAL VICTIMIZATIONS, UNITED STATES, 1974	27
3	THE LAW ENFORCEMENT PRODUCTION FUNCTION	42
4	INCAPACITATION AND DETERRENCE FUNCTION	44
5	THE TAXATION FUNCTION	46
6	THE HOUSEHOLD DISUTILITY FUNCTION AND HOUSEHOLD CONSUMPTION POSSIBILITY FRONTIER. . .	47
7	THE COMPLETE MODEL	50
8	PER CAPITA DIRECT EXPENDITURE FOR CRIMINAL JUSTICE ACTIVITIES OF STATE AND LOCAL GOVERNMENTS, FOR STATE AREAS (FISCAL YEAR 1976) . . .	86

EXECUTIVE SUMMARY

PURPOSE

This report has been prepared to review the economic implications (i.e., direct and indirect costs; and the input, output, and outcome measurement relationships) associated with serious juvenile crime in the United States.

METHOD

The economic analysis that is presented in this report is the result of an assessment of research studies and economic literature that has estimated the costs and cost relationships associated with the commission of serious criminal acts. Costs are divided into two groups. The first group is composed of direct costs which are made up of: (1) uncompensated costs to victims; (2) psychic injuries incurred by witnesses; and (3) monetary and psychic costs incurred by victims and witnesses in subsequent juvenile justice system processing activities. The second group is composed of indirect costs which are introduced by: (1) increased expenditures (e.g., due to rises in consumer prices); (2) increased taxes to compensate victims; (3) diminished neighborhood quality of life (reflected through decreased property values); and (4) juvenile justice system processing costs (e.g., police, court, and correctional processing).

Cost relationships are subdivided into two separate types of program impact evaluation: (1) process evaluations examine the extent to which inputs contribute to desired program outputs; and (2) outcome evaluations, on the other hand, look at the extent to which inputs and outputs contribute to desired program outcomes. These two evaluation types together measure the extent to which effectiveness is achieved, and serious juvenile crime, with its resulting costs, are decreased.

KEY FINDINGS

Based on a review of existing crime data and the economic literature that is available, it is clear that existing data bases need to be refined. If possible, new data bases should be established in conjunction with ongoing research efforts aimed at determining factors which contribute to serious juvenile crime production. The types of questions that the research efforts address will determine, in large part, the data needs; and the quality of data that are generated will determine the validity of the research conclusions.

Also, there is a need to develop a systematically reliable design to measure the extent to which inputs and outputs contribute to outcome effectiveness.

Both of the deficiencies identified here prevent a truly meaningful assessment of the overall impact of serious juvenile crime. Until these deficiencies are rectified, it is impossible to establish exact economic cost and impact relationships.

GENERAL CONCLUSIONS

The current state-of-the-art of outcome effectiveness and cost-effectiveness analysis lags substantially behind simple cost analysis. Based on these facts, there are a series of general conclusions that emerge and should be viewed essentially as policy recommendations for future activities.

First, based on the assessment of police efforts, it seems that police resources should be allocated within the jurisdiction on the basis of the estimated, aggregate, serious crime costs imposed.

Second, a balance must be struck between providing a satisfactory quality of justice to the offender and the relative cost to the community.

Third, well coordinated court and corrections programs should be developed which emphasize reductions in serious juvenile crime. Program elements should focus specifically on factors associated with crime production.

Fourth, funding should be targeted for processing specific groups of serious offenders as a means of encouraging the emergence of privately operated programs. In this regard, small jurisdictions could pool resources for treating serious offenders and hopefully experience a cost savings (e.g., for the female offender).

Finally, various free market strategies for reducing crime targets should be employed and new strategies devised. Existing strategies, like the automatic transfer of social security payments to banks for the elderly, and gas stations requiring exact change or credit cards during nighttime operations, seem to have succeeded. Such encouraging results should serve as a basis for future free market, crime reduction strategies.

CHAPTER I

INTRODUCTION

In this chapter, the economic impact of serious juvenile crime is explored from several general perspectives. First, crime is examined as cost-imposing behavior beyond the total control of the community, and hence the typical household. The economic rationale for government intervention is examined and the corresponding trade off between costs imposed by crime and costs of government intervention to prevent crime and to process offenders is studied.

Following the initial examination, the structure of the report is set forth, including methodology, definition of terms, and organization of subsequent chapters. Conceptual and economic overviews are developed for the various costs of serious juvenile crime and costs of government intervention in controlling both the production and the consequent distribution of crime costs among individual victims and households in general.

The extent of serious juvenile crime is then considered and reliability of the two major sources of crime data, the FBI's Uniform Crime Reports (UCR) and the National Crime Survey (NCS) victimization studies, are assessed. The chapter concludes with the development of an estimate of the volume of crime which will serve as a base for the subsequent development of aggregate estimates of serious juvenile crime costs.

Economics is typically defined as the science of scarcity: of allocating scarce resources, transforming them into goods and services, and distributing these limited resources among unlimited human wants, with money being the typical mechanism of exchange. In a free economy, in the absence of government intervention, resources, goods, and services are exchanged for money in the market place. Prices are determined by the intermeshing of supply and demand. However, this unregulated production, distribution, and consumption of goods and services is not always socially desirable. Production of certain items may result in socially undesirable by-products, such as water, land, and noise pollution. Unregulated distribution may result in glaring social inequalities. Consumption of certain products, certain drugs for example, may be deemed socially unacceptable. Other undesirable social activities, such as crime, involve all three types of economic activity (i.e., production, distribution, and consumption). Crime is produced by offenders and distributed among individual victims and households who, involuntarily, are forced to bear the costs imposed, to forcibly consume the costs of crimes committed by offenders.

An economic rationale for government intervention exists when economic activity does result in socially undesirable effects. The purpose of government intervention is to mitigate the negative impacts of social, including economic, activity. Since production, distribution, and consumption of crime all include socially undesirable consequences, the rationale exists and the government does in fact intervene. The criminal and juvenile justice systems attempt to control the production and distribution of crime by investigating, apprehending, and processing offenders, while the government acts through various compensation programs and public mechanisms to allay the costs incurred by victims of crime.

Both crime and government intervention to control crime are ubiquitous phenomena in this society. While not everyone experiences crime directly, as victims, everyone experiences the impact of crime indirectly, by interacting socially with victims and by bearing various indirect costs of crime in general. These indirect costs may be monetary, such as higher prices attributable to business crime and business security, or nonmonetary, such as fear. In addition, every household bears its share of the costs of government intervention in the form of taxes.

The purpose of this report is to assess the total economic impact of a particular type of crime: serious juvenile crime. According to FBI official statistics (Uniform Crime Reports), serious juvenile crime has increased over the past ten years and has accordingly assumed a high public policy-making priority status.

A first stage in determining the extent of such public policy formation and implementation, hence intervention, is to develop a picture of the extent and makeup of the economic impact of crime. This report undertakes to develop such a picture of the economic impact of serious juvenile crime.

DEFINITION OF TERMS: ASSESSMENT, THE SERIOUS JUVENILE OFFENDER, ECONOMIC IMPACT, AND COSTS

This report is principally an "assessment" of the research on economic impact of serious juvenile crime. By definition, an assessment consists of "synthesizing what has been accomplished on a topic and identifying findings on which there is substantial agreement, findings that are in contention, and questions that have not yet been addressed" (69, p. 47). Original research is entered into only when an informational gap of relatively minor magnitude is encountered, and such research will yield a better understanding of the economic impact picture. Given the time and resource constraints of this effort, major gaps in the research can only be identified as areas for future research.

There has been considerable variance in the definition of serious juvenile crime in past research efforts. This study, in conjunction with the other studies in this series of reports,* employs a definition based upon both the Sellin-Wolfgang Seriousness Scale (11) and the Uniform Crime Reports Index Crimes.**

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*For a detailed discussion of the Sellin-Wolfgang Scale and its application to the present definition of serious juvenile crime, see: Volume II, Part A, Definition, of this report series entitled, A National Assessment of Serious Juvenile Crime and the Juvenile Justice System: The Need for a Rational Response.

**Index offenses are defined by UCR as: murder, forcible rape, robbery, aggravated assault, burglary, larceny-theft, and motor vehicle theft (105, p. 1).

The focus of this report, however, will be on those juvenile offenders who impose substantial costs on the community, substantial meaning in the thousands of dollars. The relevance of this latter definition will assume greater significance in subsequent chapters when average costs of crime are analyzed. This latter definition also has the merit of including violent* juvenile offenders as well as chronic juvenile property** offenders, using the Wolfgang definition of chronic property offender as any juvenile with five or more convictions for property crimes (14). Accordingly, when the term "serious juvenile offender" is employed, it will comprise both violent juvenile offenders and chronic juvenile property offenders.

Economic impact of serious juvenile crime can be defined as a disruption in economic activity (production, distribution, and consumption of resources, goods, and services) on the part of individual households and businesses. This economic impact or disruption can be divided into direct and indirect costs. Direct costs of serious juvenile crime are those which are imposed on victims and, to a lesser extent, witnesses of an individual crime. These direct costs include monetary or property loss, physical or mental injury, lost income, and the value of lost consumption opportunities, generated by the crime itself or by subsequent involvement in the juvenile justice system, (i.e., police and court processing). Indirect costs are defined as those costs arising out of serious crime in general (aggregate) which are incurred by the community on a household level in the form of increased expenditures (increases in prices attributable to business crime and private corporate compensation of employee victims, residential and personal

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*Murder, forcible rape, robbery, aggravated assault

**Burglary, larceny-theft, motor vehicle theft security, and insurance); increased taxes (public victim compensation, such as unemployment compensation, welfare, and State and locally operated victim compensation programs, and costs of juvenile justice system programming); and a decrease in overall neighborhood quality of life as reflected in diminished property values. Costs of government intervention are included in the indirect costs of crime.

The first three chapters of this report will focus on direct and indirect costs of serious juvenile crime, excluding costs of intervention (juvenile justice system processing). Chapter IV will consider the economic impact of government and community intervention, focusing on juvenile justice system costs and external costs. Juvenile justice system costs include all costs generated by programs within the juvenile justice system (including police, courts, and corrections) in servicing serious juvenile offenders. Also included are all outlays for services provided under contract by private organizations or by other public agencies. External costs comprise those costs associated with goods and services provided to serious juvenile offenders by private organizations or by public agencies which are not paid for by juvenile justice system programs. Examples are costs associated with community mental health centers, Alcoholics Anonymous, vocational rehabilitation programs, and private self-funded programs.

Chapter V considers impact in terms of output and outcome effectiveness of various forms of government and community intervention, particularly those programs dealing primarily with serious juvenile offenders. In Chapter VI, program effectiveness measures are then combined with measures of juvenile justice system processing costs in order to assess their "economic efficiency." Chapter VII will consider policy issues and implications emerging from the previous assessment of the different components of economic impact, and Chapter VIII will summarize the entire assessment effort.

A CONCEPTUAL OVERVIEW

In order to simplify the collection of the data and the display of the results of this assessment effort, a conceptual framework was developed. As shown in Figure 1 (p. 7), this framework is based upon three sets of linkages which delineate the direct and indirect costs of crime. The first consists of: (1) the traditional offender-victim linkage, encompassing the direct costs of crime offset by restitution if any; (2) the victim (witness)-juvenile justice system linkage which comprises the direct cost of participation within the juvenile justice system; and (3) offender-juvenile justice system linkage which comprises juvenile justice system processing costs.

The non-juvenile justice system governmental linkages (i.e., the second set of linkages), include costs of public compensation or assistance to victims of serious crime and costs of provision of services to offenders by government programs outside the juvenile justice system. These services include vocational rehabilitation, alcohol and other drug treatment services, and community mental health services.

The third and final set of linkages include: (1) indirect crime costs imposed on the community at the household level in the form of higher prices, residential and personal security costs, and a decrease in neighborhood quality of life as reflected in diminished property values; and (2) costs associated with community participation in juvenile justice system processing. These include costs of services to juvenile offenders when the referring juvenile justice system agency does not provide monetary reimbursement, as well as costs incurred by volunteers participating in juvenile justice system and private processing.

FIGURE 1

A CONCEPTUAL OVERVIEW

OFFENDER - VICTIM:	• direct costs of crime: costs of physical, psychic injury; monetary or property loss; lost earnings	Traditional Linkages
	• restitution benefits	
VICTIM (WITNESS) - JUVENILE JUSTICE SYSTEM:	• direct cost of participation within juvenile justice system	
OFFENDER - JUVENILE JUSTICE SYSTEM:	• juvenile justice system processing costs	
GOVERNMENT - VICTIM (WITNESS):	• public assistance or compensation to offset costs incurred by victims of crime	Non-Juvenile Justice System Government Linkages
GOVERNMENT - OFFENDER:	• external (referral) costs (vocational rehabilitation, alcohol and other drug detoxification and treatment services, mental health treatment)	
COMMUNITY - VICTIM (WITNESS):	• private assistance or compensation	Community Linkages
COMMUNITY - OFFENDER:	• indirect crime costs (increased residential prices, security, diminished housing values)	
	• implicit volunteer costs	
	• external (referral) costs	
	• community-service benefits	
COMMUNITY - JUVENILE JUSTICE SYSTEM:	• implicit volunteer costs	

Taken together, these three sets of linkages, involving traditional, governmental, and community resources, provide an overview of costs which can be associated with crime. The remainder of the report will develop a detailed economic analysis based upon this conceptual framework.

AN ECONOMIC OVERVIEW

Economic activity consists of the production, distribution, and consumption of goods and services. Crime inflicts damages and injury to people and is inversely related to the service they desire: the provision of safety. Since crime is the antithesis of safety, it can be viewed as a "negative" good or service, occasioning costs rather than benefits. Although production, distribution, and consumption actually take place simultaneously in the case of a single serious crime, the discussion of aggregate serious crimes require that each of the three types of economic activity be considered as separate and extended in time. Production comprises causes of serious crime (e.g., economic, social, and individual). Distribution is concerned with victimization including the differences and similarities in the imposition of costs of crime. Consumption consists in the actual costs imposed upon the victim and society, and how these costs effect individual and household behavior.

In order to generate a base from which to develop total direct costs of aggregate serious juvenile crime, this assessment effort employed two major sources of crime data: Uniform Crime Reports (UCR) and Criminal Victimization in the United States: A National Crime Survey Report (NCS). Together, these can be used to estimate the frequency of juvenile arrests in proportion to adult arrests, the frequency of reported crimes for all ages combined, and subsequently the volume of juvenile crimes, both reported and unreported.

UCR identifies an increase in arrests of juveniles under the age of 18 for violent crimes* during the period 1970-1975 of 54 percent. Juvenile aggravated assault and robbery lead the list with increases of approximately 54 percent each, followed by homicide (28 percent) and forcible rape (19 percent). But despite these substantial increases, juvenile arrests for violent crime accounted for only 10 percent of all juvenile arrests in 1975. Furthermore, adult arrests for violent crime exceeded juvenile arrests by a margin of approximately three to one in that same year (104, p. 184).

Looking next at overall trends related to the frequency of reported _offenses_, as opposed to arrests, UCR data reflects a certain amount of variability from one year to the next. For example, the number of violent crimes reported to the police showed annual increases of 5 to 11 percent between 1972 and 1975, followed by a decrease of 4 percent in 1976 (105, p. 37). The victimization survey (NCS), on the other hand, shows a somewhat different picture. Namely, NCS data reflects a great deal of _stability_ in the aggregate commission of violent crime. For the years 1973 through 1976, the overall rate of victimization per 1,000 Americans aged 12 and over remained unchanged at 32. The rates for personal robbery range from 6.5 to 7.1, and assault from 24.7 to 25.3. When the rates for robbery and assault are totalled together, they demonstrate the greatest consistency of all--5.4, 5.6, 5.4, and 5.5 for the years 1973 to 1976 (108, p. 11; 109, p. 25).

It should be noted that the accuracy of both official statistics (UCR) and victimization surveys (NCS) has been questioned. Since UCR is based on reports from law enforcement agencies, various police practices are often cited as criticism of the arrest and clearance rates presented in UCR. Practices which might affect the validity of UCR include: police overcharging, lack of consensus regarding the meaning of "juvenile arrest" (42) year-to-year changes in the number of jurisdictions included in the UCR reports (120, p. 22), and the inclusion of police reports in UCR which have not been audited by the FBI (120, p. 22). While victimization surveys can avoid some of these difficulties, they are not without problems. For example, the reliability of the surveys depends upon accurate recall by those interviewed, as well as a clear understanding of the types of crimes being examined.*

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*Murder, forcible rape, robbery, and aggravated assault

Other difficulties can arise when attempting to compare official statistics (UCR) and victimization surveys (NCS). The most basic difficulty is that the source of each report is different: UCR is based only on crimes known to law enforcement agencies, while NCS includes both reported and unreported crimes. Another difficulty stems from the fact that the NCS victimization surveys include only victims 12 years and older, while UCR incorporates crimes against persons of any age. Also, the crime categories used in the UCR and NCS reports are not totally comparable. For example, the NCS definition of "violent crime" excludes homicide, since the nature of the victimization survey does not allow collection of that information (24, p. 48).

In spite of these difficulties, the two data sources can be used in conjunction with each other if a certain amount of caution is followed so as to avoid making faulty comparisons. The use of both official statistics and survey data allows one to make estimates of the volume of both reported and unreported juvenile crime, which would not be possible if only one source or the other had been used.

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*For a detailed discussion of the advantages and disadvantages inherent in each of these data sources, please see Volume II, Part B, Characteristics of Incidents and Individuals of this report series entitled A National Assessment of Serious Juvenile Crime and the Juvenile Justice System: The Need for a Rational Response (pp. 8-9 and 187-230).

The Distribution of Aggregate Serious Juvenile Crime

The large majority of victims of violent juvenile crime are other juveniles. In fact, based on victimization data contained in the December 1977 National Crime Survey Report, juvenile victims of violent crimes committed by juveniles outnumber elderly victims 10 to 1. Over 60 percent of the victims involved in juvenile violent crimes committed by offenders perceived to be juveniles were juveniles (83, p. 42).

This phenomenon is explained in part when the extent of school-based violent crime is studied. A report released in 1978 by the National Institute of Education (NIE) indicated that over 40 percent of the robberies and 36 percent of the assaults of urban teenagers occurred at school (98, pp. 2). For students age 12 to 15, a remarkable 68 percent of the robberies and 50 percent of the assaults occurred at school. Furthermore, a substantial number of teachers are robbed and assaulted in school as well (8, pp. 2-4). Table 1 (p. 12) shows the aggregate crime data contained in the NIE report for a five month period (September 1974 through January 1975) (98, p. B-4). If these five month figures are compared to total juvenile arrests for violent crime in 1974 (103, p. 186), one can see that one juvenile arrest for each incident would account for nearly all the robbery and assault arrests reported to the FBI for juveniles under 15 and a substantial portion of the arrests for juveniles under 18.

Juvenile gang violence was much publicized during the first half of the century and then seemed to drop out of public awareness. Only the police departments in major metropolitan areas maintained that gang violence was still a formidable problem (58, pp. 1-2). Each of three major national commissions reported on a wide range of major crime problems in the United States over the past dozen years: The President's Commission on Law Enforcement and Administration of Justice (83, p. 67), the National

TABLE 1

CRIME IN THE NATION'S SCHOOLS

OFFENSE	CITIES	SUBURBS	RURAL	TOTAL
Rape	70	113	80	263
Robbery	4,883	2,921	1,158	8,962
Assault	13,071	10,722	2,816	26,609
Personal Theft	20,087	30,255	14,029	64,371
Burglary	22,844	33,143	22,910	78,897
Arson	2,140	2,615	867	5,622
Bomb	3,642	5,856	3,337	12,835
Disorderly Conduct	9,505	10,442	5,889	25,836
Drug Abuse	7,545	18,246	7,280	33,071
Alcohol Abuse	2,465	7,699	4,543	14,707
Weapons	5,000	3,087	1,283	9,370
Totals	91,252	125,099	64,192	280,543

Source: 98, p. B-4

Commission on the Causes and Prevention of Violence (64,pp. 1449-1450) and the National Advisory Commission on Criminal Justice Standards and Goals (68), all conveyed the message that youth gang violence is not a major crime problem in the United States and should not, therefore, become a major object of specialized attention and concern. A study by Walter Miller challenges that conclusion (58). Miller has compiled estimates (based on police data) of gang member arrests for violent crimes as a percentage of all juvenile arrests in the nation's three major metropolitan areas: Los Angeles, New York City, and Chicago. Table 2 (p. 14) presents these estimates (58, p. 32). These data are inflated on two counts. First, more than one-third of gang member arrests may involve non-juveniles age 18 and over in Chicago and Los Angeles, and 16 and over in New York City. Secondly, violent gang member arrests include some crimes other than the four major violent crime categories (e.g., kidnapping, shooting at occupied dwellings, possession of firearms). Nevertheless, even discounting the gang member arrest estimates by 50 percent still leaves gang and group crime accounting for a substantial proportion of all violent juvenile crime in metropolitan areas. Furthermore, victimization data from the National Crime Survey's 1975 report corroborates and indicates that group and gang crime is not just a metropolitan phenomenon. Approximately 10 percent of all rapes, robberies, and aggravated assaults involve four or more offenders (110, p. 52). Like violent offenses committed in schools by students where most of the victims are also students, most of the victims of juvenile gang violence are also juveniles.

Uniform Crime Reports (UCR) arrests and clearances, despite their flaws, remain the only and therefore the best indicator of frequency of juvenile arrests for serious crimes relative to

TABLE 2

GANG MEMBER ARRESTS AS A PROPORTION OF JUVENILE ARRESTS

1973-1974

	Juvenile Arrests All Offenses[1]	Juvenile Arrests Violent Crimes[2]	Gang Member Arrests,[3] All Offenses, as Percent of Juvenile Arrests	Gang Member Arrests, Violent Crimes,[4] as Percent of Juvenile Arrests
NEW YORK CITY	23,600	7,079	15.2	31.4 [4]
CHICAGO	65,166	9,857	7.2 [6]	25.7 [4]
LOS ANGELES	35,593	4,609	11.5 [6]	44.5 [5]
THREE CITIES	124,359	21,545	10.0	31.5

(1) Chicago, Los Angeles, 17 and under; New York City, 15 and under; 1973 figures.

(2) Homicide, Assault, Robbery, Rape

(3) All Ages

(4) "Violent" Crimes Not Identical With Footnote 2 Offenses

(5) Footnote 2 Offenses

(6) Gang Member Arrests for 1974

Source: 58, p. 32.

adult arrests. For actual numbers of serious crimes committed, the Criminal Victimization (NCS) data is the best indicator, as the Uniform Crime Reports contain only reported arrests. This assessment effort extracted aggregate estimates for each of the serious crime categories (based on NCS). and to these estimates applied juvenile arrests as a percentage of all arrests for serious crime (based on UCR). Table 3 (p. 16) contains these aggregate serious crime estimates, juvenile arrest percentages, and resultant juvenile serious crime estimates (105, p. 181 and 109, p. 48).

ADDITIONAL ECONOMICALLY RELEVANT PRODUCTION CHARACTERISTICS

Many theories of "causes" of serious crime have been developed over the years attributing predilection for criminal activity to various psychological and sociological variables. Identification of these proposed "determinants" of crime can be useful by providing a basis for tailoring justice system processing to the particular needs of juvenile offenders. For example, serious juvenile crime, especially violence, tends to be disproportionately produced by low income, minority neighborhoods. It is consequently in inner city or deteriorating outlying neighborhoods where the major share of serious juvenile crime is produced. Factors which have been proposed to account for this include: family disruption, development of antisocial subculture, and lack of economic or social opportunities.

Several studies have identified learning and behavioral disabilities as significant determinants of juvenile crime production. Some studies conclude that 5 to 10 percent of juvenile offenders may be mentally disabled, and that as many as 50 percent of all juvenile offenders suffer from learning disabilities.*

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*For extensive review of these disabilities, and their role in crime production, see: Services for Developmentally Disabled Delinquents and Offenders (74), and The Mentally Retarded Offender and Corrections: A Prescriptive Package (87).

TABLE 3

AGGREGATE SERIOUS CRIME COMMITTED BY JUVENILES, 1976

SERIOUS CRIME	AGGREGATE CRIME[1]	JUVENILE ARRESTS AS PERCENTAGE OF ALL ARRESTS[2]	ESTIMATED JUVENILE SERIOUS CRIME[3]
Property crime:			
Personal larceny > $250	968,657	43%	416,523
Household larceny > $250	474,351	43%	203,971
Burglary			
Forcible entry	2,277,000	51%	1,161,270
Unforced entry or unsuccessful forcible entry	4,387,000	51%	2,237,370
Auto theft	760,000	53%	402,800
Total property	8,867,008		4,421,934
Violent crime:			
Robbery (without serious physical injury)	991,020	34%	336,947
Robbery resulting in serious injury	199,980	34%	67,993
Assault with a dangerous weapon (without serious physical injury)	1,389,900	17%	236,283
Assault involving serious injury	305,100	17%	51,867
Rape (without serious physical injury)	118,900	17%	20,213
Rape involving serious injury	26,100	17%	4,437
Homicide	18,780[3]	9%	1,690
Total violent	3,049,780		719,430
Total overall	11,916,788		5,141,364

NOTE: Since the original source, UCR (105), does not report figures for offense subcategories, e.g., personal larceny and household larceny, some of the percentages are necessarily rough estimates.

Sources: (1) Computed based on 109, p. 48; (2) computed based on 105, p. 181; (3) extracted from 105, p. 35.

Another important variable is the economic circumstances of juveniles, particularly whether or not they are employed. Juveniles have shown considerable and increasing unemployment over the last 17 years. Table 4 (p. 18) illustrates that growth.* Unemployment rates measure the percentage of those actively seeking employment who cannot secure any. It does not include those who are in school or who are not interested in working, or who have stopped trying to find employment. If juveniles in these latter categories are included in a statistical base upon which unemployment rates are derived, it is obvious that the rates for the juvenile age group would be considerably higher.

Table 4 (p. 18) shows that over the last 17 years, the population of 14- to 17-year-olds has increased nearly 50 percent. Unemployment rates show an increase of 88 percent over the same period (96), indicating a possible link between crime and economic circumstances.

Close examination of serious crime production leads researchers to conclude that a significant portion of serious crime can be attributed to a small but criminally active segment of the juvenile population. A study by Wolfgang, Figlio, and Sellin (14) shows that among the 10,214 boys born in Philadelphia in 1945 who composed the birth cohort, 6.3 percent had committed five or more offenses and that this 6.3 percent accounted for 52 percent of all delinquent acts committed over a 10 year period by the entire group (14, pp. 88-89). Of the 5,305 total offenses committed by this group of chronic juvenile offenders, only 329 (6.2 percent) of the offenses were violent index offenses. However, the 329 violent index crimes committed by the chronic offenders accounted for 70 percent of all violent index crimes committed by the cohort, while the 1,397 property index crimes

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*The unemployment figures shown in Table 4 (p. 18) are for 14- to 15-year-olds only, since data for other juvenile age groups was not available. However, it is assumed the statistics for 14- to 15-year-olds will provide a rough estimate of overall unemployment trends among juveniles.

TABLE 4

JUVENILE POPULATION AND UNEMPLOYMENT TRENDS, 1960-1977

YEAR	POPULATION OF 14-17-YEAR-OLDS[1]	UNEMPLOYMENT RATE 14-15-YEAR-OLDS[2]
1960	11,219,000	8.0
1961	12,052,000	8.1
1962	12,759,000	7.7
1963	13,500,000	8.4
1964	14,274,000	7.9
1965	14,153,000	7.6
1966	14,405,000	7.9
1967	14,735,000	9.1
1968	15,173,000	9.0
1969	15,560,000	8.9
1970	15,910,000	11.0
1971	16,281,000	11.8
1972	16,556,000	11.9
1973	16,748,000	11.3
1974	16,880,000	13.4
1975	16,934,000	14.4
1976	16,893,000	14.8
1977	16,783,000	15.0
	change +5,564,000 +50%	change +7.0 +88%

Sources: (1) 96; (2) based on telephone conversation with the Bureau of Labor Statistics, Department of Labor.

accounted for 62 percent of all property index offenses (14, pp. 69 and 102). These findings have been substantiated by more recent cohort studies in New York (13), Minneapolis (59), and Columbus, Ohio (5).

ADDITIONAL ECONOMICALLY RELEVANT DISTRIBUTION CHARACTERISTICS

The distribution of serious juvenile crime can be examined on various levels. One such level is demographic differences including the age, sex, or race of victims. For example, it was previously noted that the majority of victims of violent juvenile crimes are themselves juveniles.

Another level of analysis considers the economic situation of victims. Victimization statistics show that most victims of violent crime are members of lower income households, while victims of property crime are primarily in the middle and upper income households. Table 5 (p. 20) illustrates this relationship. Close to 50 percent of victims of violent crime come from households with annual income less than $7,500. Households characterized by annual income greater than $10,000, however, sustain over 50 percent of all serious property crimes (110, p. 25).

TABLE 5

DISTRIBUTION OF SERIOUS CRIME BY ANNUAL HOUSEHOLD INCOME OF VICTIM, 1975

OFFENSE TYPE	ANNUAL HOUSEHOLD INCOME OF VICTIM		
	$7,500 or less	$9,999 or less	$10,000 or more
Violent crimes:*	43%	60%	40%
Rape	50%	66%	34%
Robbery	49%	66%	34%
Aggravated assault	46%	61%	39%
Property crimes:			
Burglary	36%	40%	60%
Larceny	29%	46%	54%
Auto theft	24%	42%	46%

*Homicide is excluded from National Crime Survey victimization data.

Source: Computed based on 110, p. 25.

CHAPTER II

DIRECT COSTS OF SERIOUS JUVENILE CRIME

A review of recent literature indicates a lack of comprehensive estimates of the direct costs of serious juvenile crime. Given this absence of information, the present chapter develops more complete cost estimates by combining existing data on the frequency and cost of index crimes with the Sellin-Wolfgang Seriousness Index. These estimates are made for individual offense types on the national level.

As defined in the preceding chapter, direct costs of serious juvenile crime consist of net costs arising out of a single crime, as opposed to indirect costs, which are comprised of costs arising out of crime in the aggregate. There are four clearly separable types of direct costs:

- net or uncompensated costs incurred by the victim, including monetary loss and costs of physical and psychic injury;
- costs of psychic injury incurred by witnesses to a serious crime;
- net costs, monetary and psychic, of participation on the part of the victim in subsequent juvenile justice system processing; and
- net costs to the witness in subsequent juvenile justice system processing.

The first two types of direct costs can be characterized as primary, the second two, secondary.

Direct costs comprise net or uncompensated costs incurred by the victim and witness. Compensation costs in the form of medical expenses, lost earnings, and any payments for pain and suffering covered by employee benefits, by unemployment insurance, by welfare, or by State and local compensation programs, constitute indirect costs and are borne by the community in the form of taxes.

Direct costs to the victim, both primary and secondary, are fairly simple on a conceptual level. Victims obviously sustain primary direct costs, doing so involuntarily. Secondary costs may or may not be voluntary, depending upon whether police, witnesses, or the victim himself report the crime. For violent crimes, primary direct costs generally outweigh secondary costs to the victim. However, for property crimes, this is not always true: potential costs of participation in juvenile justice system processing (i.e., secondary costs) may outweigh the primary costs which have been sustained. This may be a factor in the higher reporting rate for violent crimes as opposed to property crimes. Furthermore, the costs of participation in juvenile justice system processing often represent an added burden to the victim. Thus, to the extent that the victim behaves rationally, the primary and secondary costs are assessed in view of what the victim knows and feels. Based on these facts, the victim then decides whether or not to report the crime.

Witnesses to certain serious crimes can also sustain primary and secondary costs, although the primary costs are purely "psychic" in nature. Restricting witness injury to its psychic aspects is definitional in nature, for if physical injury or threat of personal injury were involved, the witnesses themselves would be victims. But if the witnesses are not injured, restrained or threatened, they are not considered to be victims because no additional crime has been committed. While such a distinction may seem highly technical, there is far more to it than mere conceptual distinction. Several State victim compensation programs, which will be discussed in the next section, provide for compensation of pain and suffering to victims of serious crimes, but witnesses to serious crimes are eligible for compensation for their suffering only if they intervene and contribute to the apprehension of the offender. Otherwise, there is no compensation. This compensation practice becomes particularly acute where the witness is intimately related to the victim and the serious crime is murder, rape, or assault resulting in severe injury, and the direct costs incurred by the witness may be very high.

PRIMARY DIRECT COSTS

Primary direct costs of serious juvenile crime are typically divided into easily quantifiable costs such as monetary or property loss, medical care, and lost earnings or support; and not easily quantifiable costs of long term physical and psychic injury.* Monetary or property loss is not really a net loss to society because it involves a "transfer:" the loss to the victim is equaled or offset by an identical gain to the offender. However, many of the most injurious (including, at the extreme, homicide) serious crimes involve very little or no transfer of money and property. Hence, this assessment shall focus on primary direct or net costs of physical and psychic injury, out-of-pocket lost earnings, and medical costs; as well as costs of long term physical and psychic injury which are less easily quantified. The importance of estimating and considering all of these primary direct costs will be analyzed. First, an assessment must be made of what is known about such costs and what has been legislated in terms of victim compensation. Since none of the research or legislation focuses exclusively on serious crime, this assessment will describe aggregate total serious juvenile crime.

Research and Legislation

The plight of the victim or witness and the estimation of and compensation for costs incurred as a result of a particular serious crime has long been relegated to a secondary status in both research and justice policy formation.* Most researchers have shied away from the estimation of primary direct costs of violent crime because of the enormous psychic costs involved when compared to the more easily measurable and less controversial losses of money and property.

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*Long-term psychic injury may consist of severe trauma or permanent mental debilitation.

Most State legislators and officials have been reluctant to legislate victim compensation programs because of apprehension about potentially enormous expenditures (29, p. 12).** The legislators and officials in States that have passed victim compensation legislation cautiously limit the types of claims that can be honored by imposing a variety of strict eligibility criteria.***

Other countries (New Zealand in 1963, and England in 1964) have pioneered victim compensation programs on a national scale. In the United States such programs have sprung up among diverse States in fairly haphazard fashion. California led the way with very limited legislation in 1967, followed by Hawaii, Maryland, and New York. As of December 1, 1978, victim compensation programs were operating in 24 States (111). These 24 States operating victim compensation programs are: Alaska, California, Delaware, Florida, Georgia, Hawaii, Illinois, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, Tennessee, Virginia; Washington, and Wisconsin.

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*For a good discussion of the extent of this neglect, see: Considering the Victim: Readings and Restitution in Victim Compensation (7); and Violence and Criminal Justice (1).

**Garafalo and Sutton further state, "Doubtless, few social programs have been inaugurated with less information than that which was available to victim compensation program planners in the late "60's or early '70's" (29, p. 12).

***These restrictions include: The victim must not have contributed to the situation which preceded his injury, he must not be or have been, at the time of the offense, living with or maintaining a sexual relationship with the offender; the victim, or representative must file within a certain period of time, usually within 180 days, or within one year; the crime must have been reported to the police within 72 hours (29, pp. 14-15).

Of the 24 States operating victim compensation programs, nine (Delaware, Hawaii, Louisiana, Minnesota, New Jersey, North Dakota, Rhode Island, Tennessee, and Wisconsin) permit compensation for pain and suffering. The other 14 States restrict compensation to net medical (or burial) expenses and net loss of earnings or support. Delaware, Hawaii, Minnesota, New Jersey, Tennessee, and Wisconsin have maximum compensation limits of $10,000; North Dakota and Rhode Island have a limit of $25,000; and Louisiana has an upper limit of $50,000. Compensation for pain and suffering, however, tends to be infrequent and small in comparison to reimbursement for out-of-pocket costs of medical care, loss of earnings or support, and compensation for permanent physical injury.* Bases for determining the extent of compensation vary dramatically from State to State, particularly among those States which allow compensation for shock, pain, and suffering. No single uniform methodology exists; the determination is based upon results of individual or panel discussion and public hearings, generally conducted within certain broad guidelines. In some cases, one of the major determinants of the amount of the award is whether the claimant is represented at the hearing by an attorney (37, p. 3). Awards to victims of crimes displaying similar characteristics vary substantially across the States and often within the same State.

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*Based on examination of Annual Reports for each of these States.

As a first stage in estimation of the costs of serious juvenile crime, one may examine a recent attempt to estimate the most easily measurable costs of crime on a national level: out-of-pocket costs. This report, entitled Compensating Victims of Violent Crime: Potential Costs and Coverage of a National Program (hereafter CVVC study) (29).

The CVVC aggregate cost estimate as shown in Figure 2 (p. 27), includes only net medical expenses (i.e., those not reimbursed by personal insurance, Medicaid, or other private or public resources) and net lost earnings (wages not reimbursed by unemployment compensation or employment benefits) (29, p. 23). They do not include any estimates for costs of "pain and suffering."*

Table 6 (p. 29) shows total and net costs incurred by victims whose injuries required medical attention (29, p. 25). It is noted that the cost figures are computed in two ways. The first way ("Not ascertained category retained") includes a column for victimizations in which the costs could not be determined. This may have been due to either lack of recall or unwillingness on the part of the victim (29, p. 24). Because the number of victims falling into this category was relatively high, the CVVC made the assumption that the distribution of these victims would be similar to those whose costs were known, and therefore placed them in the appropriate cost columns. The results of this "allocation procedure" are reflected in the second row of computations in Table 6 ("Not ascertained category retained").**

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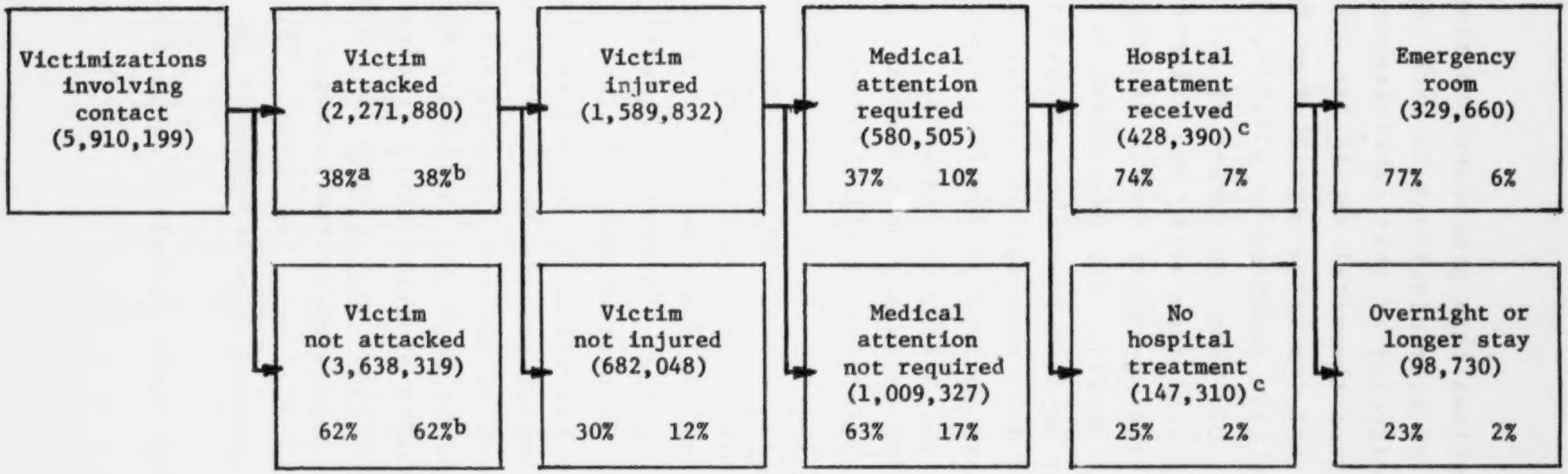
*The CVVC study concluded: Because they represent intangible injury, the probability and cost of pain and suffering awards are difficult to predict. It is probably this ambiguity that has led to the limited adoption of pain and suffering clauses by legislatures. Similarly, the projections in this study will assume that pain and suffering awards will be excluded from the typical compensation program (29, p. 16).

**For a more detailed discussion of this procedure, see Compensating Victims of Violent Crime (29, p. 23-24).

FIGURE 2

EXTENT OF INJURY AND MEDICAL ATTENTION INVOLVED IN PERSONAL VICTIMIZATIONS, UNITED STATES, 1974


Victimizations involving contact (5,910,199)
Victim attacked (2,271,880) 38%[a] 38%[b]
Victim not attacked (3,638,319) 62% 62%[b]
Victim injured (1,589,832)
Victim not injured (682,048) 30% 12%
Medical attention required (580,505) 37% 10%
Medical attention not required (1,009,327) 63% 17%
Hospital treatment received (428,390)[c] 74% 7%
No hospital treatment (147,310)[c] 25% 2%
Emergency room (329,660) 77% 6%
Overnight or longer stay (98,730) 23% 2%

[a] Based on number of victimizations in the preceding branch of the diagram.

[b] Based on total victimizations involving victim/offender contact (N=5,910,199).

[c] Information not ascertained in 4,805 cases.

Source: 29, p. 23

Table 7 (p. 29) follows this procedure one step further by multiplying the number of victimizations in each cost category (from Table 6) by the midpoint of that same category (29, p. 25). This provides estimates of the total net dollar costs of medical expenses. It is seen that the total unreimbursed medical costs sustained by victims in 1974 amounted to $22,575,545.

Tables 8 and 9 (p. 30) show the number of victimizations resulting in time being lost from work, the value of that time lost, and estimates of the aggregate annual monetary costs of this lost work time (29, pp. 28-29). The procedures for computing these costs are similar to that described for medical costs. Table 9 shows total estimated lost earnings of: $112,662,255 (29, p. 30).

The actual estimates derived in the CVVC study are far too restricted in scope (e.g., taking into account only net medical expense) to serve as other than a lowest boundary on estimated costs of violent crime involving physical injury. Valuation of long-term physical and psychic injury was excluded. The methodology employed, however, was essentially sound.

There have been three other previous attempts to estimate national costs of violent crime: R. James Woolsey's 1966 report on the costs of crime and criminal justice; the 1967 President's Commission on Law Enforcement and Administration of Justice;* and Marvin E. Wolfgang's 1968 work on measuring the volume and character of crime. These studies varied greatly in the scope of their estimates. All included some measure of medical expenses and lost earnings. One, the study developed by Woolsey, included a measure of psychic costs as well. The results of these three studies are presented in a table developed in Crimes of Violence (64, pp. 394-404), one of several reports generated by the National Commission on the Causes and Prevention of Violence, 1969 (64). This table is represented here in excerpted form as Table 10 (p. 31).

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*Utilizing in large parts estimates derived by R. James Woolsey's 1966 report.

TABLE 6

ESTIMATED NUMBER OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES REQUIRING MEDICAL ATTENTION BY TOTAL AND NET MEDICAL COSTS[a] TO THE VICTIM, 1974

	Medical Costs										
	No cost	$1-24	$25-49	$50-99	$100-249	$250-499	$500-999	$1,000-4,999	$5,000 or more	Not ascertained	Total
Total cost:											
Not ascertained category retained	104,114 18%	69,270 12%	59,315 10%	57,635 10%	53,115 9%	18,034 3%	17,426 3%	26,981 5%	7,978 1%	166,628 29%	580,505 100%
Not ascertained category allocated	146,031 25$	97,157 17%	83,195 14%	80,839 14%	74,499 13%	25,295 4%	24,442 4%	37,844 7%	11,203 2%	--- ---	580,505 100%
Net cost:											
Not ascertained category retained	329,042 57%	16,584 3%	11,472 2%	9,511 2%	7,591 1%	1,314 0%	1,169 0%	1,329 0%	1,121 0%	201,372 35%	580,505 100%
Not ascertained category allocated	503,809 87%	25,392 4%	17,565 3%	14,563 3%	11,623 2%	2,012 0%	1,790 0%	2,035 0%	1,716 0%	--- ---	580,505 100%

[a] Medical costs include "doctor and hospital bills, surgeon's fees, emergency room expenses, ambulance service, service of a physical therapist and dentist fees. Also [included are] expenses for medicine and any kind of special devices or aids the victim was forced to obtain as a result of his injury, such as braces, dentures, eyeglasses, wheelchair, and artificial limbs."

Source: 29, p. 25

TABLE 7

ESTIMATES OF UNREIMBURSED MEDICAL COSTS (NET COSTS) INCURRED BY VICTIMS, UNITED STATES, 1974

	Net Medical Costs								
	$1-24	$25-49	$50-99	$100-249	$250-499	$500-999	$1,000-4,999	$5,000 or more	Total
Category midpoint	$12.50	$37.00	$74.50	$174.50	$374.50	$749.50	$2,999.50	$ 6,000.000	NA
Number of victimizations	25,392	17,565	14,563	11,623	2,012	1,790	2,035	1,716	76,696
Percent	33%	23%	19%	15%	3%	2%	3%	2%	100%
Cumulative percent	33%	56%	75%	90%	93%	95%	98%	100%	NA
Total cost in category	$317,400	$649,905	$1,084,944	$2,028,214	$753,494	$1,341,605	$6,103,983	$10,296,000	$22,575,545
Percent	1%	3%	5%	9%	3%	6%	27%	46%	100%
Cumulative percent	1%	4%	9%	18%	21%	27%	54%	100%	NA

[a] Precise midpoint undefined because category is open-ended, but number of cases drop rapidly when expenses exceed $5,000.

[b] Includes only victimizations with unreimbursed medical costs. Victimizations in which medical costs were not ascertained have been proportionally allocated to the displayed categories; see Table 6 and text.

[c] Number of victimizations in category multiplied by the category midpoint and rounded, where necessary, to the next highest dollar amount.

Source: 29, p. 25

TABLE 8

ESTIMATED NUMBER OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES RESULTING IN SOME LOSS OF WORK TIME, BY NUMBER AND VALUE OF WORK DAYS LOST, 1974

Number of work days lost	Dollar value of time lost								
	$1-24	$25-49	$50-99	$100-249	$250-499	$500-999	$1,000-1,499	$1,500-1,999	Total
Less than 1	95,517 60%	56,420 36%	6,743 4%	—	—	—	—	—	157,680 27%[a]
1 to 5	18,675 7%	21,500 8%	71,517 25%	140,731 50%	31,093 11%	—	—	—	283,316 49%
6 to 10	—	1,348 4%[b]	—	16,159 45%[b]	8,800 24%[b]	4,442 12%[b]	5,435 15%[b]	—	36,184 6%
More than 10	—	—	2,984 3%	21,622 22%	37,127 38%	27,692 28%	7,227 7%	1,350 1%	98,002 17%
Total	113,192 20%	79,268 14%	81,244 14%	178,512 31%	77,020 13%	32,134 6%	12,662 2%	1,350 0%	575,382 100%

(a) column percent; (b) percent computed on base that contains 50 or fewer sample cases.

Source: 25, p. 30.

TABLE 9

ESTIMATED VALUE OF TIME MISSED FROM WORK AS A RESULT OF PERSONAL VICTIMIZATIONS IN THE UNITED STATES, 1974

	Dollar value of time lost								
	$1-24	$25-49	$50-99	$100-249	$250-499	$500-999	$1,000-1,499	$1,500-1,999	Total
Category midpoint	$12.50	$37.00	$74.50	$174.50	$374.50	$749.50	$1,249.50	$1,749.50	NA
Number of victimizations	113,192	79,268	81,244	178,512	77,020	32,134	12,662	1,350	575,382
Percent	20%	14%	14%	31%	13%	6%	2%	0%	100%
Cumulative percent	20%	34%	48%	79%	92%	98%	100%	100%	NA
Total value of time lost	$1,414,900	$2,932,916	$6,052,678	$31,150,344	$28,843,990	$24,084,433	$15,821,169	$2,361,825	$112,662,255
Percent	1%	3%	5%	28%	26%	21%	14%	2%	100%
Cumulative percent	1%	4%	9%	37%	63%	84%	98%	100%	NA

Source: 25, p. 30.

TABLE 10

CRIME COST ESTIMATES

(DOLLAR ESTIMATES IN MILLIONS)

1. Destruction or Damage of Human Capital	CRIME CATEGORY	
Murder and non-negligent manslaughter.--The major difference between the Crime Commission and Woolsey on the one hand and Wolfgang on the other concerns the already discussed calculation of forgone earnings. Wolfgang used the vital statistics estimates of the race, age, and sex of the homicide victim and the Rice estimates of lifetime earnings. Their projection was reduced by 20 percent to take into account that homicide victims earn less than the average. The Wolfgang method of calculation is on balance preferable.	Woolsey Crime Commission Wolfgang	$750 $750 $484
Rape and assault.--The very large figure presented by Woolsey includes a subjective cost of rape as a certain percentage of homicide. The Wolfgang estimates are based on cost of medical expenses and lost production for victims.	Woolsey Crime Commission Wolfgang	$568 $ 65 $142
2. Illegal Transfers		
Robbery, Burglary, Larceny, and Auto Theft.--Individual estimates for robbery and burglary are exactly the same for Woolsey and the Crime Commission. They disagree with Wolfgang because Woolsey and the Crime Commission used FBI data, while Wolfgang used National Opinion Research Center (NORC) data plus estimates. The estimates on larceny are quite similar for all three. Variation occurs as a result of slightly differing estimates. Estimates of auto theft are virtually the same by Woolsey and Wolfgang with considerable difference in the Crime Commission estimate. The Crime Commission included a factor for damage to cars recovered after being stolen. There do not seem to be any significant issues separating the various estimates of costs for these crimes.	Woolsey Crime Commission Wolfgang	$499 $600 $672

Source: 64, pp. 400-401

Each of the three studies also developed their national estimates by deriving average cost estimates and multiplying them by the total numbers of serious crimes. The scope of these estimates varied as described in Table 10 (p. 34). A key element related to estimating total primary direct costs of assault and rape is the statement: "The very large figure presented by Woolsey includes a subjective cost of rape as a certain percentage of homicide" (64, p. 400). Woolsey selected a sound method of estimating subjective or psychic costs of rape and assault, because homicide obviously imposes the greatest direct cost and is the only crime for which any body of research into associated costs exists.*

DIRECT COSTS OF HOMICIDE: THE VALUE OF LIFE

Researchers have long been concerned with determining the value of a human life. One research study published in 1930, entitled The Money Value of a Man (3), surveyed previous contributions in "value of life" literature. Included were: Political Arithmetic, or a Discourse Concerning the Extent and Value of Lands, People, Buildings, Etc. (1699); Contributions to 39th Annual Report of the Registrar General of Births, Marriages, and Deaths for England and Wales (1876); and Der Werthtes Menschen (The Worth of Men) (1883).

All of these early reports, and indeed, most of those published since then, estimate only medical and burial costs and the discounted present value of future earnings. This approach bypasses estimation of the other intangible costs associated with loss of life, although typically they are described at some length. The authors of The Money Value of a Man state that they are not,

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*One major reason for homicide being the only one of the four major violent crimes in which any investigation has taken place is that in the case of homicide, investigators focus on employment and leisure (consumption) opportunities foregone. However, in rape and assault, and to a lesser extent robbery, if injury is involved, researchers have to confront the altered physical and mental states which result from diminished consumption opportunities. Because of the difficulty and potential controversy inherent in assessing the level of physical and psychic damage, researchers investigate the relatively safe crime: homicide. Even here, however, as shall be seen, examination typically excludes intangible (psychic) costs.

> ...insensible to the deep significance of valuation, of a kind, given to intangible things. Quite on the contrary realizing the supreme significance of these intangibles in human affairs, we shall expressly refrain from dealing with such spiritual values by methods wholly unadapted for their measurements (8, p. 21).

The different approaches to determining the value for human life which have been and can be employed can be separated into seven categories:

(1) A discounted present value of net future earnings approach;

(2) A human capital approach: valuating life based on the education, vocational training, experience, and developed abilities the individual has vested in himself;

(3) Estimating the net losses incurred by the victim and/or by his family;

(4) Examination of the implicit values placed on injury or loss of life by the political (legal) process;

(5) Examination of injury or threatened injury determined in victim compensation programs;

(6) Imputation of value of injury or loss of life by examination of individual willingness to avoid or pay to avoid risky, potentially injurious or fatal situations; and,

(7) Imputation of direct costs by means of econometric analysis.

In examining the seven different approaches, one can begin with the first two, which deal solely with estimating the value of life, hence, homicide costs. The last five approaches can be examined on the more general level focusing on the applicability of cost estimates arising from all four types of violent crime: robbery, aggravated assault, rape, and homicide. Table 11 (p. 35) presents cost estimates developed employing some of these different approaches by source, year, basis, amount, and amount in 1977 dollars.

The Discounted Present Value of Net Future Earnings Approach

The discounted present value of net future earnings approach consists of estimating the differential between expected earnings and expected consumption expenditures over a lifetime and discounting it by an appropriate rate of interest to yield the present value. It can be conceived as an estimate of an individual's expected contribution over a lifetime to general societal wealth.

Since it is concerned exclusively with net earnings, such an estimation procedure will generally grossly underestimate the total cost of homicide. The attraction of such an approach is that it is by far the easiest to undertake. Most attempts at evaluation have employed this procedure. Table 11 (p. 35) shows that such estimates range, in 1977 dollars, from $2,815 to $246,240 (8, pp. 26-40; 29, p. 36; and 82, p. 45).

The Human Capital Approach

The human capital approach estimates the value of a person's life as vested in his developed capabilities. The value of education, vocational training, experience, and other variables is estimated, and serves as a measure of the worth of an individual to the community at the time of death, hence, a measure of the loss to society. The obvious difficulties lie in determining the relative value of education, training, and experience, measurement of which must be, to a certain degree, subjective. In addition, if the total estimate is to be comprehensive, the value of expected future development of the victim's human capital of his lifetime must be determined, an even more difficult and subjective task. The quantity of human capital that has been accumulated generates the flow of annual earnings to an individual and will tend to increase with education and experience and, hence, with age. Thus, if only developed capabilities

TABLE 11

COST ESTIMATE OF HOMICIDE

SOURCE	YEAR	BASIS	AMOUNT	IN 1977 DOLLARS*
New York State Victim Compensation Program[1]	1975	Average amount for homicide	$ 2,500	$ 2,815
Dawson (U.K.)[2]	1970	Analysis of fatal automobile accident cost (excluding psychic)	$ 41,875	$ 65,351
Crime Commission[3]	1965	Earning capacity	$ 76,142	$146,240
Usher[4]	1973	Hazard pay	$150,000	$204,545
Melinek (U.K.)[5]	1974	Imputed costs of avoiding pedestrian subway accidents	$217,500**	$267,273
Fromm[6]	1960	Loss to Individual $210,000 Loss to Family 123,000 Loss to Community 4,000	$337,000	$689,577

*Estimates were converted to 1977 dollars using the Consumer Price Index maintained by the Bureau of Labor Statistics, Department of Labor.

**English Pounds converted to U.S. Dollars at rate of $2.50 to £1.

Sources: (1) 29, p. 36; (2) 8, pp. 27-29; (3) 82, p. 15; (4) 8, pp. 36-38; (5) 8, pp. 38-40; (6) 8, pp. 26-27 at the time of death are estimated, then the estimated value would increase with the age of the victim. However, if one sums discounted earnings for the remaining years of life (i.e., measures the present value of expected future earnings), this will decline with age, since fewer working years remain.

The greatest value of the human capital approach lies in its addressing the impact of "loss of life" to the community. Hence, such an approach is most useful when utilized in conjunction with one of the other approaches that estimates the loss to the victim's family (or persons closest to the victim), thereby providing a more comprehensive cost estimate.

Estimate of Net Losses Approach

Estimation of net losses accruing to victims or to their families focuses on all unreimbursed losses arising out of the particular serious crime. Each cost is estimated separately, then is summed together to arrive at a total direct cost estimate. The study examined earlier, Compensating Victims of Violent Crime (29), fits into this category, although homicides are not included since victimization data restricts its violent crime estimates to rape, aggravated assault, and robbery. Psychic costs are inevitably excluded, as are most other costs other than net medical expenses and net lost earnings. For homicide, other costs include funeral/burial expense and economic losses associated with expected levels of goods and services which could have been provided had the victim lived. For households in which the head of household was the victim, for example, such losses include a decreased general standard of living (decreased consumption opportunities) and absence of higher education opportunities. Two estimates derived by employing this approach, although they vary enormously in scope and amount, are the Dawson estimate of $65,351 and the Fromm estimate of $689,577, both in 1977 dollars, contained in Table 11 (p. 35; for source, see 8, pp. 26-29).

Examination of the Implicit Values Placed on Injury or Loss of Life by the Political-Legal Process

This approach is an indirect method of determining direct serious crime cost. It consists of an analysis of civil court awards in cases involving one or more of the serious crimes. Two major problems inherent in this approach are the lack of uniformity in determination of awards and the difficulty in separating punitive damages from compensation to victims or their survivors.

During a criminal trial or a juvenile justice hearing, the only remedy (compensation) available to the victims or their survivors is the potential conviction and sentencing of the offender, and in some serious crime cases, an ensuing restitution arrangement.* However, in a civil proceeding to recover damages sustained in assault or battery (i.e., an offense involving "unlawful intentional inflicting, or attempted or threatened inflicting, of injury upon another" [91, p. 15]), the victim is entitled to sue his assailant for damages. In the case of homicide, the closest survivor is entitled to sue for damages.

In practice, such suits are rare due to (1) the relative infrequency of arrest and conviction of the offender, (2) the impoverished economic circumstances of the offender, and (3) the costs of litigation. However, a number of such awards have been made and constitute a basis for examination.* Much more numerous and applicable to a large degree are awards in civil court arising out of transportation accidents. An important advantage of this approach and the next three to be discussed is that costs of permanent physical injury and psychic costs are sometimes included in the estimates.

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*Restitution is employed far more often in dispositions for nonviolent than violent offenses. Restitution in violent crime cases, however, is by no means a relatively rare phenomenon in juvenile courts. A recent survey of the extent of restitution in juvenile courts discovered that 86 percent of the courts contacted used restitution as a partial or total disposition. Moreover, of the courts using restitution, restitution was ordered in 10 percent of sexual case dispositions, 24 percent of assault dispositions, and a surprising 45 percent of all robbery dispositions. Unfortunately, no data were gathered for restitution amounts (90, pp. 46-47).

Examination of Value of Injury or Threatened Injury as Determined Under Victim Compensation Programs

This approach would, at first consideration, appear to be the best source of cost information. Fifteen States, however, (out of the 24 mentioned on p. 24) restrict benefits to net medical expenses and lost earnings. Awards in the other nine States that do allow compensation for pain and suffering indicate that such awards are small in comparison to compensation for net medical expense and lost earnings. Therefore, this approach doesn't provide a sufficient basis for cost estimation.

Imputation of Value of Injury for Loss of Life by Examination of Individual Willingness to Avoid or Pay to Avoid Risky, Potentially Injurious or Fatal Situations

This approach has been utilized in evaluating physical injury or death in several areas of behavior other than crime. Such an approach determines the probability of physical harm arising from a particular behavior and the amount (i.e., the premium) that an individual is willing to pay to reduce that probability of harm or eliminate it altogether. The estimate associated with the value of the particular potential injury or death is derived by dividing the premium by the probability.

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*One economist objects to this approach on the grounds that: "(I)f economists are invited to provide political decision makers with values derived from basic economic criteria of social choice, then such economists simply become involved in an empty circularity if they then refer 'a question, or a part of a question received from the political process back again into the political process.'" "Evaluation of Life and Limb: A Theoretical Approach," by E. J. Mishan, as discussed in The Value of Life: An Economic Analysis (8, p. 33).

Estimates of the value of death vary greatly. S. J. Melinek employed this approach in the areas of smoking in subways and working in dangerous environments. He determined the average premium that individuals would be willing to pay to avoid death or serious injury in these situations and converted them to estimates of the value of life. As shown in Table 11 (p. 35), his most sound estimate, that for avoidance of serious injury or death in subway crossings amounts to $267,273 in 1977 dollars (8, pp. 38-40).

This approach shows great promise in estimating direct crime costs. It would be interesting and useful to apply it to specific violent crimes and contrast the resulting estimates with those derived by other methods, such as the next approach to be discussed.

Imputation of Direct Cost by Means of Econometric Analysis

Econometric analysis is simply the application of statistical, economic, and analytical techniques. This approach, because of its complexity and refinement, offers the greatest potential among the different approaches for truly comprehensive direct cost estimates. It suffers, however, from several severe drawbacks, each of which shall be delineated in the following discussion. Close examination of the economic model upon which the econometric method is based affords an intimate view of the workings of the justice system and the importance of including comprehensive cost estimates in allocation of system resources and related policy formation.

The Law Enforcement Production Function

The econometric approach begins by estimating costs of law enforcement functions. Inputs in the form of capital (e.g., facilities, equipment) and labor (all personnel: administrative, support, investigative, and patrol) produce outputs in the form of protection and processing of victims and offenders.

Outputs are obviously complex and a number of measures have been theoretically derived, but the only measure for which data exists on an individual crime level are number of clearances accomplished by law enforcement agencies. Clearance rates published by the Federal Bureau of Investigation (FBI) in the Uniform Crime Reports are the ratio of crimes cleared (e.g., by arrest, by confession, by the decision on the part of the victim not to prosecute) to reported crimes of a particular type (105, p. 160). The flawed nature* of clearance rates constitutes one of the major drawbacks of this approach. For, no matter how conceptually sound and elaborate an economic approach may be, it is only as good as the data it processes. As long as no reliable data alternative to clearance rates exists, estimates generated by econometric studies will continue to be flawed as well.

Offense clearances are often used as a proxy, or all-inclusive variable, for all law enforcement outputs. Ideally, more sophisticated data would include other law enforcement outputs, such as success of crime prevention efforts, in addition to solutions of crimes already committed. Also, even in terms of existing data collection capabilities, clearances could be divided into separate data categories reflecting actual arrests, clearances by confession, or victim reluctance to prosecute.

Relationships between inputs and consequent outputs constitute a production function. Two assumptions underlie the production function: (1) that law enforcement administrators and line personnel know and serve the best interests of society, and (2) that capital (be it in the form of office space or moveable equipment) and labor are divisible, that is, can be assigned to different functions. According to the first assumption, resources are deployed, under ideal conditions, among various enforcement functions on the basis of relative benefits to society generated by their respective functions. For example, police equipment and personnel will be assigned to the varied functions of administration, patrol, and investigation of crimes based on the benefits those functions yield to society. These benefits take the form of apprehended offenders and hence, reduced crime, both directly (by incapacitation) and through the deterrence generated by arrests and subsequent processing. Each resource generates an associated cost in the form of salaries and benefits, and capital costs.

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*Some of the criticisms of clearance rates include: (1) that they are "padded" by promising individuals already in custody that they will not be charged for any other crimes that they admit to, or even that confession may mitigate final disposition; and (2) that trivial incidents are sometimes classified as crimes and subsequently "cleared" by stating that the victim will not prosecute.

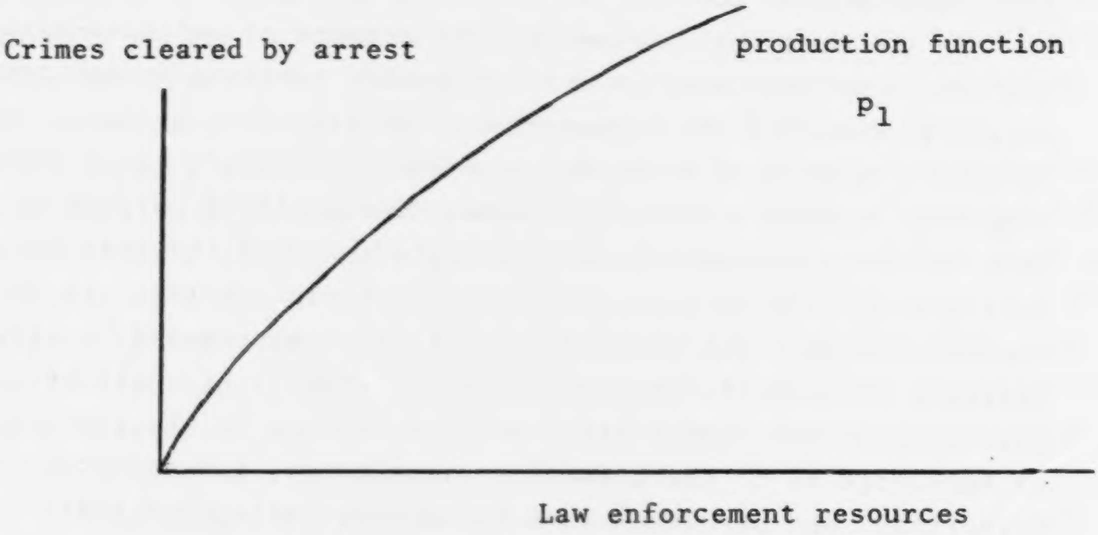
In the real world, however, the actions of police administrators, line personnel, and other public servants do not necessarily reflect the best interests of society (27, p. 11). In fairness, much of this is due to a lack of clarity as to what comprises society's best interests. One explicit purpose of this entire assessment is to elucidate societal interest by determining total or societal costs of violent crime. In this report, the best interests of society are represented by efforts designed to minimize the total cost of crime. As shall be explored in further depth later in this report, in the absence of knowledge as to the cost of serious crime, law enforcement authorities and personnel tend to underestimate such costs. This underestimation results in resources being allocated to the prevention and solution of minor property crimes far more than to the solution of violent crimes.

The second assumption, regarding divisibility of inputs, presents no problem. Labor and capital are for the most part divisible; indeed, as shall be seen in the analysis of police processing, many departments have moved to specialized processing by forming separate units for various types of crimes.

The positive relationship between inputs and outputs can be depicted graphically by the law enforcement production function, as illustrated in Figure 3 (p. 42). This relationship embodies the idea that for a community subject to given amounts of crime, the greater the number of police officers hired by the community, the greater the number of crimes that can be cleared by arrest. The curvature of the function illustrates diminishing returns to scale: as law enforcement resources are increased, the number of additional crimes cleared by arrest per additional resource becomes smaller.

FIGURE 3

THE LAW ENFORCEMENT PRODUCTION FUNCTION



The Deterrence and Incapacitation Function

In the absence of more refined data, clearances must also serve as a proxy for the probability of conviction and punishment in the estimation of incapacitation and deterrence.* Of course, other factors such as length of imprisonment and swiftness of punishment affect incapacitation and deterrence as well.

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*For a detailed examination of this topic, please see: "Economic Analysis of the Deterrent Effect of Punishment: A Review" (76).

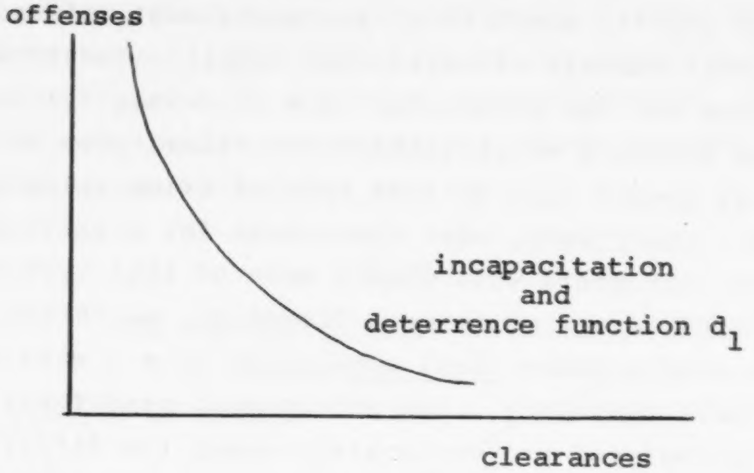
In deterrence theory, it is postulated that offenders are rational. Therefore, when clearances increase overall, thus increasing the likelihood of arrest, conviction, and punishment, offenders decrease the total amounts of crime they commit. Furthermore, when clearances for one particular type of crime, for example, robbery, rise relative to clearances for other types of crime, offenders will commit less of that type of crime relative to all other crimes. Conversely, when clearances for a particular type of crime fall, offenders will commit more of that type of crime relative to other types of crime. Therefore, an established relationship exists under ideal conditions (i.e., when all other factors are held constant). Law enforcement resources, capital, and labor are deployed proportionately among the different law enforcement functions, yielding a certain set of clearances. These clearances, to the extent that they represent incapacitation, remove offenders from the crime industry and result in an adjusted level and variety of offenses. Offenses are, of course, a function of numerous socioeconomic and other kinds of variables. But these other variables are assumed here to be constant so that cost relationships can be determined.

In the real world, of course, all offenders do not always act rationally. Some offenders are mentally disabled or mentally ill. Many act under the influence of drugs of one type or another, including alcohol (91). Finally, many simply do not choose to act rationally in the classical economic sense--in their own best interests.

The incapacitation and deterrence function can be illustrated graphically as in Figure 4 (p.44). The greater the number of clearances, the fewer will be the number of offenses committed, other things being equal.

FIGURE 4

INCAPACITATION AND DETERRENCE FUNCTION



THE CONSUMPTION OF CRIME

Besides offenders and law enforcement personnel, all other individuals are categorized as consumers of goods and services on a household level. People are assumed to be rational in the classical economic sense; that is, they consume various packages of goods and services at associated prices based on the utility or the satisfaction that such consumption yields. They act to maximize utility and maintain consumption, in the long run, within the limits of their net income and budget constraints. These budget constraints are in turn a function of gross household income and all deductions, including Federal, State, and local taxes. For a given budget constraint, each consuming household will have a certain combination of goods and services consumed at a certain level of savings which yields them maximum utility. Their consumption, or behavioral pattern, is in turn a function of many variables: tastes, habits, and others including overall and individual levels of crime. Shopping or seeing a show in a particularly crime-ridden neighborhood may not be included in the consumption/behavior pattern. For an elderly couple living in a crime-ridden neighborhood, all their consumption may take place indoors, and their overall utility or satisfaction for the same net income may be much less than that of their counterparts in a crime-free neighborhood. Similarly, through taxation, the net income and, hence, consumption/behavior pattern is also a function of levels of law enforcement.

The assumption of consumer rationality has been roundly assailed in economic literature. Individuals do not always consume in their self-interest, although they do so far more often than offenders act in their own true self-interest.*

Households, that is all people, are affected by crime consumption on two levels. First, on a general consumption level, they are affected by taxation to support law enforcement efforts and other criminal justice costs. This has the effect of lowering net income, and results in diminished consumption opportunities. On a second level, the costs of crimes against businesses are passed on to households in the form of higher prices. Other indirect costs of crime acting to reduce real net income or purchasing power include: (1) reduced property values attributable to crime on a neighborhood level which lowers the ability of the community resident to purchase and consume on credit (i.e., the ability to purchase and consume is a function of wealth and of net assets, in addition to net income); and (2) expenditures on security equipment and services at the expense of other goods and services. Individual consumption opportunities are restricted by overall and specific crime levels, especially nighttime leisure activities.

All households bear indirect costs of aggregate serious crime and some must bear the greater direct costs of individual crime. Such households have their consumption patterns severely disrupted. The relationship between household consumption and direct and indirect costs absorbed in the form of reduced net income and diminished consumption opportunities, as well as consumption and costs of law enforcement passed on to households in the form of taxation, can be illustrated graphically. Figure 5 below illustrates the taxation function: i.e., the relationship between aggregate law enforcement resources and household taxes attributable to levels of law enforcement. Law enforcement resources and taxes vary directly so that the greater the level of aggregate law enforcement resources, the greater the level of taxation.

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*It is interesting to note that some offenders may assess the risks associated with the commission of a crime and determine quite rationally that in their own self-interest these risks are outweighed by the high yield of some crimes.

FIGURE 5

THE TAXATION FUNCTION

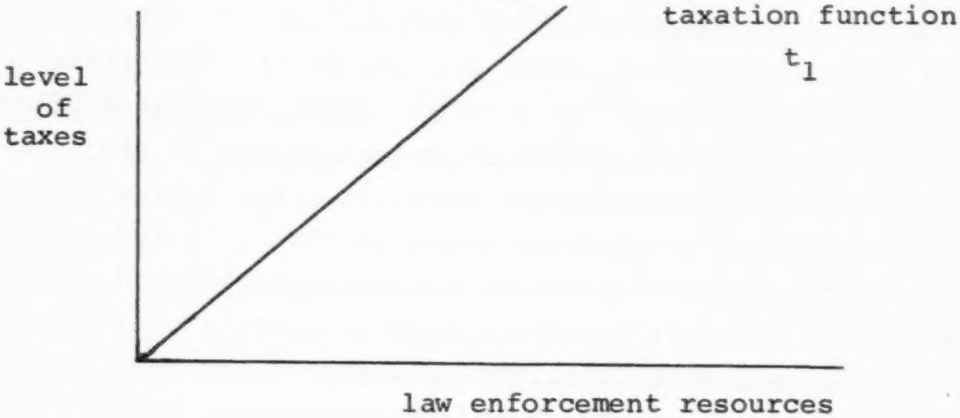
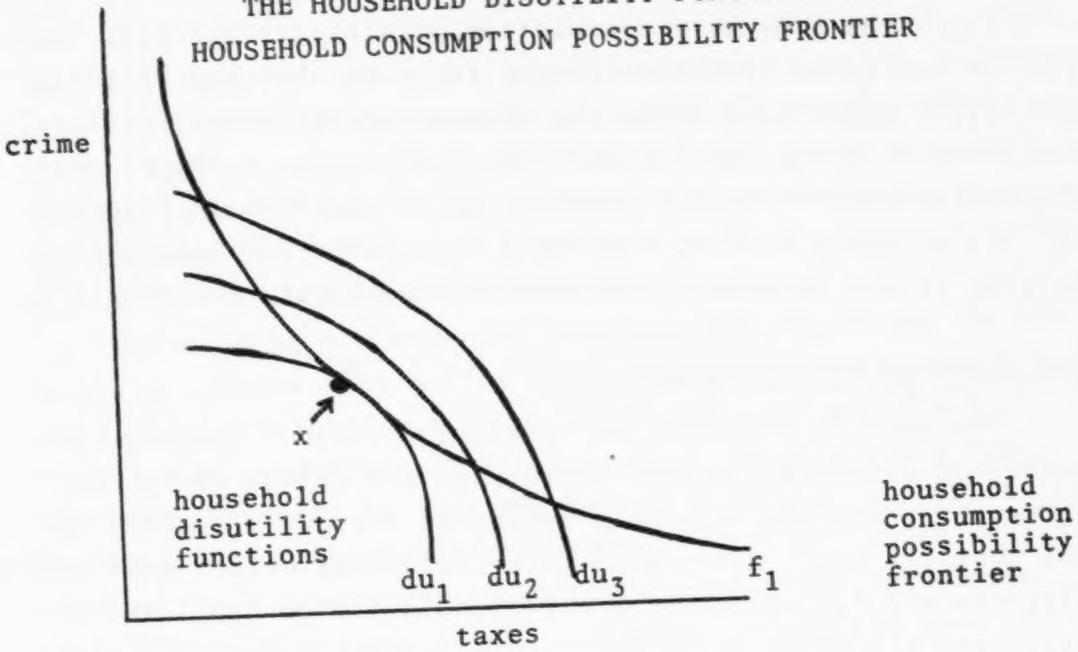


Figure 6 (p. 47) illustrates the relationship between levels of taxes and crime, and overall household satisfaction. Since crime and taxes are negative goods, (that is, they are avoided if possible and yield dissatisfaction or disutility rather than the satisfaction or utility associated with "normal" goods), the objective of the consuming household is to minimize the disutility occasioned by involuntary consumption of crime and taxes. Households are happier, the lower the levels of crime and taxes. But there is a tradeoff between crime and taxes. A community can pay more taxes to hire more police, who in turn will clear more crimes through arrest. This will deter and incapacitate offenders and lower crime. This tradeoff between crime and taxes is illustrated by the line in Figure 6 below labeled the "household consumption possibility frontier." The household will choose the point from among all the possibilities on this frontier that makes it most happy.

FIGURE 6

THE HOUSEHOLD DISUTILITY FUNCTION AND
HOUSEHOLD CONSUMPTION POSSIBILITY FRONTIER


crime
x
household disutility functions
du_1
du_2
du_3
f_1
household consumption possibility frontier
taxes

Households differ in their tastes and preferences. Each household has a certain set of tastes and preferences which determine the overall level of satisfaction yielded by consumption of goods and services. In typical economic theory, these overall levels of satisfaction are utility functions or "indifference curves." These are so labeled because of the manner in which they are derived; i.e., by increasing levels of consumption of one good or service relative to another until the consumer is indifferent between consumption of either "package"--both are concluded to yield equal satisfaction or utility.

In traditional economic theory, individual utility functions or indifference curves are represented as curves convex to the origin. In the present situation, since crime and taxes are negative goods (as defined on p. 46), disutility functions can be graphically represented as in Figure 6 (p. 47). The lower the level of crime and taxes, the happier the household. As illustrated in Figure 6, households are happier with crime and tax combinations on curve "du_1" than they are with combinations on "du_2." Therefore, they choose Point X on "du_1."

Along the household consumption possibility frontier there will be one point (one combination of crime absorbed directly and taxes) which will yield the "household minimum disutility": the point at which the household is best off in terms of overall satisfaction. Such a position is illustrated in Figure 6 (p. 47) at Point X where household disutility function u-1 is tangent to the household consumption possibility function f-1.

THE ECONOMIC MODEL COMPLETE

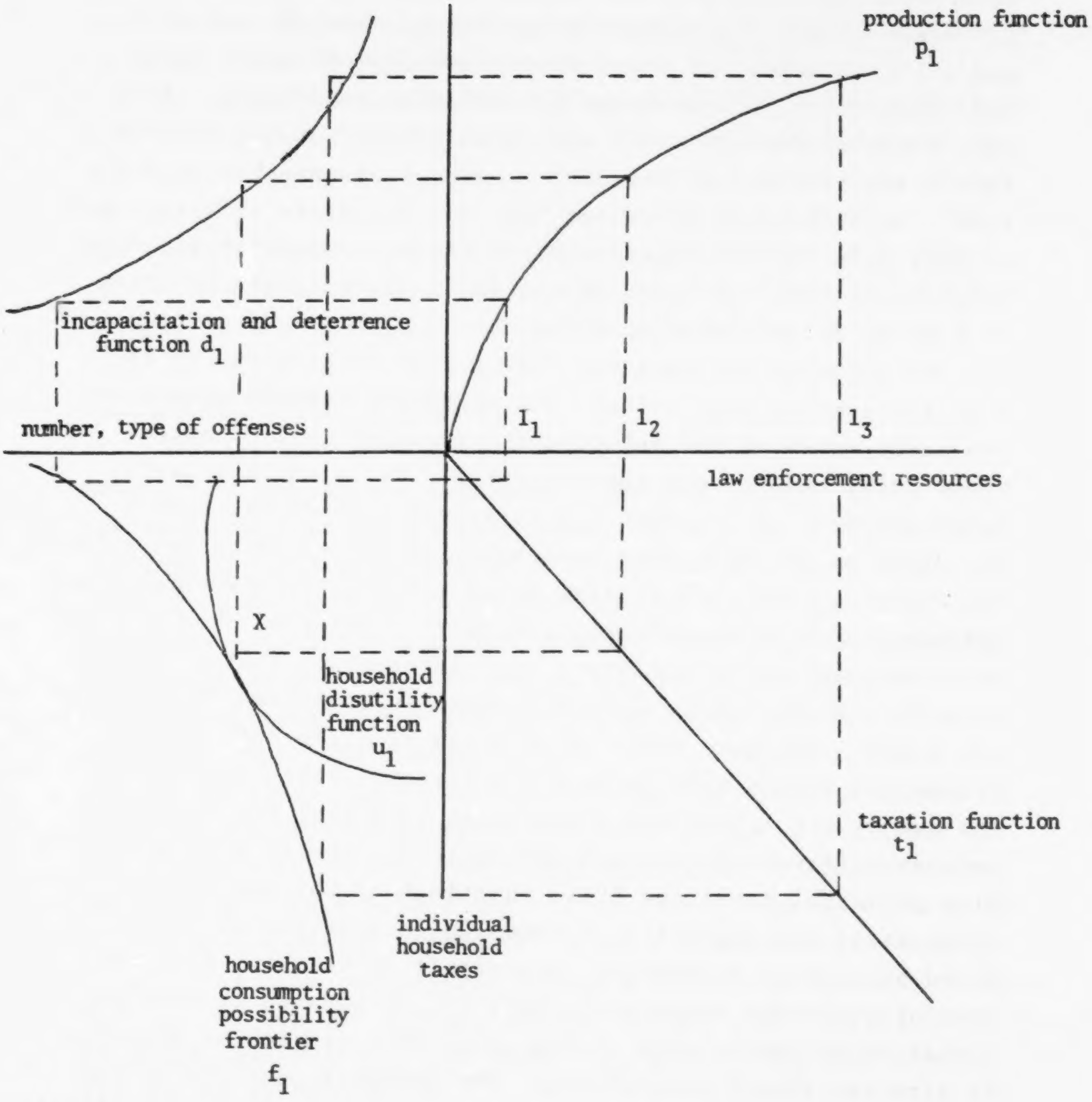
Now one can consider the model as a whole. Knowing the number of offenses and clearances, and the prices of law enforcement resources, the only remaining unknown variables are the implicit costs associated with individual crimes experienced directly and aggregate crime experienced indirectly. By substituting all other variables into the model and manipulating overall levels of law enforcement production and specific production in terms of solving particular types of crime (i.e., homicide, rape, aggravated assault, and robbery), subsequent changes in clearance rates can be gauged by studying alterations in consumption patterns for various levels and types of law enforcement. Also, the levels and types of violent crime, and the values for direct and indirect costs can be derived by examining changes in clearance rates. Estimates have been derived using this econometric approach by Matthieson and Passel (53, pp. 93-96) for average direct robbery cost ($2,245 in 1977 dollars), and Phillips and Votey (82, p. 49) for auto theft ($2,602 in 1977 dollars).

The complete workings of the model can be illustrated graphically in Figure 7 (p. 50). Figure 7 illustrates the derivation of the household consumption possibility frontier, f-1. For a given production function p-1, incapacitation and deterrence function d-1, and taxation function t-1, variation in levels of law enforcement resources as shown by 1-1, 1-2, and 1-3 will trace out a map of combinations of crime costs and taxes which must be borne by consuming households. This map, extended for all other aggregate amounts of law enforcement resources, is the household consumption possibility frontier. As previously described (see p. 47), there will be a particular point in the function where the household can minimize total disutility, that is, direct and indirect costs of crime. This point is indicated as Point X.

By deciding how much tax they are willing to pay to reduce the damages they suffer from crime, households determine the level at which law enforcement operations are financed. Under ideal conditions, these household decisions are registered collectively through the political process, thus it is the decision of the median household, or voter, which determines the outcome. Also under ideal world conditions, law enforcement administrators and personnel, consumers themselves when off the job, know and act in society's best interests. That is, administrators deploy resources under their jurisdiction among various crime functions, i.e., in solution of different types of crimes, in accord with society's interests, which is equal to the sum of all individual preferences regarding the trade-offs between different direct and indirect crime costs and taxes. Line personnel carry out these functions in the same manner. These facts are implicitly assumed in econometric analysis. Based on such an assumption, the result is that the marginal cost of law enforcement activities can be equated to marginal social or household cost of the crime that particular activity is directed toward controlling. The estimates derived by the econometric method are the marginal law enforcement cost estimates.

FIGURE 7

THE COMPLETE MODEL


production function
p_1
incapacitation and deterrence function d_1
number, type of offenses
l_1
l_2
l_3
law enforcement resources
X
household disutility function
u_1
taxation function
t_1
individual household taxes
household consumption possibility frontier
f_1

Note: The above graph was developed based on Figures 3, 4, 5, and 6 found on pp. 59, 61, 63, and 64.

The extent to which the real world departs from the ideal world of the economic model upon which econometric analysis is based influences the extent to which cost estimates derived by the econometric approach diverge from real costs of crime.

As previously described, the extent to which the real world also departs from the assumptions of law enforcement administrators and line personnel knowing and acting in society's best interests, and offenders and consuming households acting in their true self-interest, severely handicaps econometrically derived estimates.

But in the real world, too, the individual household plays only a marginal role in the determination of overall law enforcement resources and the allocation of resources among different crime-controlling functions. The political process by which such determination occurs is typically cumbersome in terms of the time required to effect change and often administered by individuals acting in their own self-interest. The net result is that resources for law enforcement, as well as other justice system sectors such as courts and corrections, are not allocated optimally from a social welfare point of view. The major reasons for divergence fall into two categories: (1) lack of knowledge regarding cost of crime, and (2) lack of incentives or controls to insure that justice system resources are deployed in a socially optimal manner.

Returning to the consuming household sector of the economic model, another approach can be conceptualized which does not rely upon the assumptions that have been found to diverge from real world conditions. Considering levels of taxes and crime to be exogenously determined (i.e., determined outside the consumption sector and therefore beyond the control of the individual household), one can observe the behavior of different households in the face of varying levels of crime and taxes. Such an analysis would be intrinsically subjective to the extent that it would entail either specification on the part of household members as to their tastes and preferences, or a determination of such tastes and preferences on the part of the researcher.

But subjectivity on the part of the researcher is inherent in any research effort, although many social scientists may disagree. Typically, the extent to which total objectivity is sought is positively correlated with the extent to which research results diverge from the true nature of whatever is being measured or estimated. The econometric approach serves as an example of this phenomenon. The more extreme the objectivity, the more restrictive the assumptions that must be employed.

The worst approach (i.e., the least socially desirable approach) is to simply quantify the immediately quantifiable costs and to ignore the rest. Quantification of only the easily quantifiable out-of-pocket costs and disregard of all others (e.g., costs of long-term physical and psychic injury and of participation in juvenile justice system processing), results in misallocated resources and insensitive handling of those individuals forced to bear such costs.

ESTIMATION OF THE DIRECT COSTS OF CRIME

The time and resources available to prepare this report did not permit an in-depth study to develop a comprehensive estimation of the direct costs of crime. However, an alternative method for determining direct costs has been devised. This method consists of developing a comprehensive cost function which includes all direct costs by matching consensually reliable cost estimates with subjective values contained in the Sellin-Wolfgang Index of crimes. The Sellin-Wolfgang Index, represented in Table 12 (p. 53) illustrates a set of subjective seriousness ratings associated with different crimes or crime results such as: (1) injury requiring outpatient treatment and (2) injury requiring hospitalization. This set of values was developed on the basis of interviews with a thousand people from different backgrounds ranging from police officers to

TABLE 12

SELLIN-WOLFGANG INDEX OF CRIME

CRIME RESULTS	SERIOUSNESS VALUE
Minor injury to victim	1
Victim treated and discharged	4
Victim hospitalized	7
Victim killed	26
Victim of forcible sex intercourse	10
Intimidated by weapon, add	2
Intimidation of persons in connection with theft, etc. (other than in connection with forcible sex acts):	
Physical or verbal only	2
By weapon	4
Forcible entry of premises	1
Value of property stolen and/or damaged:	
Under $10	1
$10-$250	2
$251-$2,000	3
$2,001-$9,000	4
$9,001-$30,000	5
$30,001-$80,000	6
Over $80,000	7
Theft of motor vehicle (recovered, undamaged)	2

Source: 12, p. 402

students. Each was asked to judge the relative seriousness of different crime incidents (12, pp. 249-252).

The Sellin-Wolfgang scores range from 1 for petty theft (under ten dollars) to 26 for homicide. Between these scores, in descending order, are the crimes which this study focuses on: robbery, aggravated assault, and rape. These Sellin-Wolfgang scores can be converted to dollar values by assigning the net loss estimates which have been derived, in 1977 dollars, to larceny, robbery, auto theft, and homicide, and developing a direct cost function which can then be employed to generate cost estimation for the other crimes.

The observed relationship between the Sellin-Wolfgang scores and the dollar estimates of damages is nonlinear. For example, petty theft has a Sellin-Wolfgang score of "1" and a dollar loss estimate of $34.08. The Sellin-Wolfgang score for burglary without forced entry is "3," and the dollar estimate is $611. While the score triples, the dollar loss estimate increases by a factor of 18. However, there is a systematic relationship between dollar loss and the Sellin-Wolfgang score. When the Sellin-Wolfgang scores were plotted against the dollar values, they were found to follow an approximate log-to-log relationship. This means that a 10 percent increase in the Sellin-Wolfgang scores results in a 26.3 percent increase in the dollar loss estimate. The relationship was fitted, using least squares regression, yielding:

$$\text{in } \$(1977) = 3.5288 + 2.628 \text{ in } (\text{Sellin-Wolfgang Score})$$

or

$$\$(1977) = 34.08\ (\text{Sellin-Wolfgang Score})^{2.63}$$

The resulting 1977 dollar estimates are presented with their corresponding Sellin-Wolfgang scores in Table 13 (p.55). Utilizing these estimates, one can derive cost estimates for the three index property crimes and for the four violent crimes with differentiation based on the extent of injury sustained. These estimates are presented in Table 14 (p. 56).

TABLE 13

ESTIMATED RELATIONSHIP BETWEEN SELLIN-WOLFGANG SCORES AND PRIMARY DIRECT COST ESTIMATES (1977 DOLLARS)

SELLIN-WOLFGANG SCORE	DIRECT COST ESTIMATES	CRIME
1	$ 34.08	
2	210.68	
3	611.49	Larceny > $250 Burglary with unforced entry Unsuccessful forcible entry
4	1,302.33	Auto theft
5	2,340.98	Robbery with serious physical injury
6	3,779.91	
7	5,667.86	Aggravated assault without serious physical injury
8	8,050.34	
9	10,970.86	
10	14,470.68	Rape without serious physical injury
11	18,590.47	Robbery, assault resulting in serious injury
. . .	. . .	
26	178,245.58	Homicide

Source: Computed based on reference no. 12, p. 402.

TABLE 14

AVERAGE PRIMARY DIRECT COSTS OF SERIOUS CRIME

SERIOUS OFFENSE	AVERAGE COST
Property crime:	
Personal larceny	$ 611
Household larceny $500	611
Burglary	
Forcible entry	2,341
Unforced entry or unsuccessful forcible entry	611
Auto theft	1,302
Violent crime:	
Armed robbery	2,341
Robbery with serious physical injury	18,590
Assault with a dangerous weapon	5,668
Assault resulting in serious physical injury	18,590
Rape	14,471
Rape resulting in serious physical injury	29,057*
Homicide	178,246

Source: Computed from Table 13, p. 75.

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*The cost estimate for rape resulting in serious physical injury was derived by taking the average of the additional costs generated in robbery and assault when serious injury is produced and adding that amount to the original rape estimate.

These cost estimates represent the average primary costs of index crimes. They include out-of-pocket costs and costs of long term physical and psychic injury. If one compares the estimates of violent crimes with the average costs of burglary without forcible entry and auto theft, $611 and $1,302 respectively, one sees that primary direct costs of violent crime may far outweigh the costs of serious property crimes. For example, as shown in Table 13 (p. 55), it would take approximately four burglaries without forcible entry to equal the cost imposed by one robbery ($2,341); nine such burglaries to equal one aggravated assault ($5,667); and 24 burglaries to equal the cost imposed by one rape ($14,407). When serious injury is involved, the disparity in costs is even more pronounced. While one cannot separate costs associated with physical injury from costs associated with psychic injury, one knows that since the actual transfer of money from the victim to the offender has been excluded, the estimates for robbery, assault, and rape without serious injury consist primarily of psychic costs. It is likely, furthermore, that psychic costs increase considerably with the extent of physical injury.

Applying the primary cost estimates in Table 14 (p. 56) to the aggregate juvenile crime data in Table 3 (p. 16), one can generate estimates of the costs of aggregate serious juvenile crime on a national level (see Table 15, p. 58). The determination of aggregate scores for aggravated assaults and robbery involving serious injury is based on the breakdown for those crimes contained in Table 3 (p. 16). The estimation for rape involving serious injury reflects the average of the percentages of assaults and robberies resulting in serious injury.

As Table 15 (p. 58) illustrates, the primary direct costs of serious juvenile crime on a national level for 1975 amount to over $10 billion (in 1977 dollars). In order to contrast the estimates for juveniles with primary direct costs of serious crime in general (i.e., adults and juveniles combined), one can

TABLE 15

PRIMARY DIRECT COSTS OF AGGREGATE SERIOUS JUVENILE CRIME ON A NATIONAL LEVEL FOR 1975 (1977 DOLLARS)

	AGGREGATE SERIOUS JUVENILE CRIME	AVERAGE PRIMARY DIRECT COSTS	AGGREGATE PRIMARY DIRECT COSTS OF SERIOUS JUVENILE CRIME
Property crime:			
Personal larceny > $250	416,523	$ 611	$ 254,495,550
Household larceny > $250	203,971	611	124,626,280
Burglary			
Forcible entry	1,161,270	2,341	2,718,533,000
Unforced entry or unsuccessful forcible entry	2,237,370	611	1,367,033,000
Auto theft	402,800	1,302	524,445,600
Total property	4,421,934		$ 4,989,133,430
Violent crime:			
Robbery (without serious physical injury)	336,947	$ 2,341	$ 788,792,920
Robbery resulting in serious injury	67,993	18,590	1,263,989,900
Assault with a dangerous weapon (without serious physical injury)	236,823	5,688	1,347,049,200
Assault involving serious injury	51,867	18,590	964,207,530
Rape (without serious physical injury)	20,213	14,471	292,502,320
Rape involving serious injury	4,437	29,057	128,925,900
Homicide	1,690	178,246	301,235,740
Total violent	719,430		$ 5,086,703,510
Total overall	5,171,364		$ 10,075,836,940

Source: Computed from Table 14 (p. 77) and Table 3 (p. 21).

apply the cost estimates to the aggregate crime data contained in Criminal Victimization in the United States, 1975 (110). Table 16 (p. 60) presents these cost estimates. Total primary direct costs of aggregate serious crime on a national level, for 1975 in 1977 dollars, amount to $35 billion. Juveniles account for 28 percent of that amount.

PRIMARY DIRECT VIOLENT CRIME COSTS INCURRED BY WITNESSES

As stated previously, the primary direct costs for witnesses entail only psychic costs, for if physical injury resulted or monetary transfer were involved, the witness would be a victim instead. As far as the authors know, no one has researched these costs. However, if hypothetically only 1 percent of all violent crimes resulting in serious injury involve witnesses emotionally involved with or linked to the victim, and the psychic costs amounted to 1 percent of the primary direct costs to the victims, then the primary direct cost would still amount to an aggregate figure of over $2 million. Furthermore, as one shall see, the same witnesses who bear these costs bear the disproportionate secondary direct costs of witnesses not intimately related to the victim.

SECONDARY DIRECT COSTS OF SERIOUS CRIME

Secondary direct costs of serious crime consist of the cost to victims and witnesses of participation in justice system processing. The justice system, that is, the police and the courts, are not always noted for their compassion to the serious crime victim. Nor are the courts noted for speed, efficiency, or

TABLE 16

PRIMARY DIRECT COSTS OF SERIOUS CRIME ON A NATIONAL LEVEL FOR 1975 (1977 DOLLARS)

	AGGREGATE SERIOUS CRIME	AVERAGE PRIMARY DIRECT COSTS	AGGREGATE PRIMARY DIRECT COSTS OF SERIOUS CRIME
Property crime:			
Personal larceny > $250	968,657	$ 611	$ 591,849,400
Household larceny > $250	474,351	611	289,828,500
Burglary			
Forcible entry	2,277,000	2,341	5,330,457,000
Unforced entry or unsuccessful forcible entry	4,387,000	611	2,680,457,000
Auto theft	760,000	1,302	989,520,000
Total property	8,867,008		$ 9,882,111,900
Violent crime:			
Robbery (without serious physical injury)	911,020	$ 2,341	$ 2,132,697,800
Robbery resulting in serious injury	199,980	18,590	3,717,628,200
Assault with a dangerous weapon (without serious physical injury)	1,389,900	5,688	7,905,751,200
Assault involving serious injury	305,100	18,590	5,671,809,000
Rape (without serious physical injury)	118,900	14,471	1,720,601,900
Rape involving serious injury	26,100	29,057	758,387,700
Homicide	18,780	178.246	3,347,459,900
Total violent	2,969,780		$25,254,335,700
Total overall	11,836,788		$35,136,447,600

Source: Based on Table 15 (p. 81) and reference no. 110.

consistency in meting out punishment to the offender.* Participation in justice system programming involves substantial cost, which is for the most part uncompensated. Although, as shall be seen, several innovative victim/witness assistance programs exist which specifically seek to alleviate these costs of participation.

One research project funded by the National Institute of Law Enforcement and Criminal Justice, LEAA, entitled Victims and Witnesses: Their Experience with Crime in the Criminal Justice System (43) specifically addressed the costs incurred by witnesses in justice system participation. While noting that psychic costs of such participation may be substantial, the study compiled only estimates of out-of-pocket costs of participation, lost earnings, and transportation costs. The average income loss for the two samples, consisting of 514 victims and 289 witnesses in Milwaukee County (Wisconsin), amounted to $127 and $81 respectively (43, p. 8). These estimates cover all types of crimes, not just violent crimes. Violent crimes, however, typically involve greater delay between the date of commission of the crime and the commencement of the first hearing or the trial, especially if the case is actually petitioned to juvenile criminal court. Furthermore, the time between the commencement of the hearing or trial and final disposition is likely to be longer for violent crimes than for nonviolent crimes because of a greater number of adjournments. Hence, the actual average income losses for victims and witnesses participating in adjudication of violent crime cases are likely to be substantially larger than the previously cited estimates. Furthermore, psychic costs of participation are likely to outstrip the average income losses, just as psychic costs greatly outweigh the out-of-pocket losses in primary direct costs of violent crime.

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*Two criminologists, Marvin Wolfgang and Gilbert Geis, describe it more graphically. Says Wolfgang of the justice system:

> "This so-called system is not a corporate entity. Its only allegiance is to itself. It has no moral conscience, no need to report to its immediate neighbors, let alone external agents. Thus it has become an index of our decadence, of our failure to treat each man as a part of humanity, of the pressure of numbers on a bureaucracy that becomes bereft of emotion...The whole criminal justice system-from police to parole-ignores the victim-except as he contributes to the evidence against the offender" (118, pp. 15 and 19).

> Says Geis:

> "It is fortunate for the functionaries in the adjudication stage in the criminal justice system that they have a monopoly in the administration of justice. Rarely has a group been so uniformly regarded with so little respect, much less admiration, by those with whom they do business" (1, pp. 71-72).

It is now useful to descriptively examine the psychic cost of participation in the justice system processing by victims and witnesses. The first stage of participation is contact with the police. It is here, because of the immediacy of the crime experience, that psychic costs arising out of the crime itself can be mitigated by a compassionate encounter or aggravated by a cold or indifferent response. The evidence suggests that victims of aggravated assault and robbery are generally treated well by the police, although enough stories circulate of cold, detached interrogation while the victim stands, sits, or lies in an injured state of shock in order to keep reporting rates depressed (118, p. 19). Victims of rape have historically fared poorly in terms of compassionate treatment on the part of the police, and evidence suggests that the psychic costs of initial police contacts are often very great (118, p. 19).

In addition to the costs associated with police contact are the costs generated by poor police reporting of the violent crime incident. Reporting is much more likely to be deficient if the reporting officer does not believe in the legitimacy of the crime, such as rape. This often results in the case being rejected by the prosecutor or dismissed by the juvenile court or Superior Court judge, thereby denying the victim the potential satisfaction of "seeing justice done." The costs associated with this denial of satisfaction can also be very substantial, particularly for violent crimes where psychic costs arising out of the crime itself are very large and for the most part uncompensated. In fact, often the victim comes to view ultimate punishment of the offender as a vindication of the psychic costs he has incurred,as a closing of the ledger on the costs incurred, so to speak.

Most of the time the ledger never gets closed. A study of the Family Court system in New York State discovered that less than a third of violent crime cases ever make it to the adjudication stage, and of the cases that do, two-thirds of them are dismissed by the judge. Part of this is attributable to police overcharging offenders (e.g., for schoolyard fights and gang-related incidents), but the bulk of these dismissals are attributable to inadequate evidence, poor police reporting, and in some cases, court ineptitude in processing (72, p. 57).

Costs are also generated by substantial delays in court processing. In the same Family Court study cited above, the researchers found that only a quarter of all cases are resolved in less than a month; in one-half of the cases, three months or more elapsed before adjudication; in over one-quarter of the cases, there were delays of more than six months; and in some cases, court processing was delayed for one and one-half years or more before resolution. Serious crime cases coming before criminal courts involved even longer delays (72, p. 61).

If the case comes to a juvenile court hearing, or a criminal court trial, the costs of being present and giving testimony may also be very large. Generally, adjudicatory hearings conducted informally in juvenile court impose much lesser costs on the victim or witnesses than do hearings or trials where defense attorneys participate. The hearings and trials in which juveniles are represented by a defense attorney are more frequently found in the wake of the Gault decision, which affirmed that juveniles have a right to counsel.

The level of psychic costs arising out of the crime may be itself directly correlated with the determination of the victim to pursue completion of adjudication. Victims of property crimes, particularly those where the amount of loss involved is relatively small, are less likely to insist on the prosecution of the offender. Comparative conviction rates bear this out, and this conclusion is given further credence when plea bargain arrangements are examined. Plea bargaining statistics show that offenders are much more likely to plead guilty to property rather than violent offenses; conversely, violent charges are much more likely to be dismissed or reduced as a result of the plea bargain. Having examined the available evidence, one can conclude that cost of participation in the juvenile justice system process for victims and witnesses of violent crimes are substantial. But, unfortunately, there is no basis upon which to estimate these costs in dollar terms.

It is instructive to examine two county level innovative programs designed to alleviate these costs incurred by victims and witnesses. The first is the Aid to Victims and Witnesses Program in San Mateo County, California (49). The Aid to Victims and Witnesses (AVW) program operates by organizing and involving all justice system agencies in the county rather than competing with them. Police are encouraged to contact AVW whenever they deal with a violent crime victim. The program then contacts the individual, assists him in recovering from the crime, sends letters to victims and witnesses notifying them that subpoenas are coming and attaching maps and simple explanations of proceedings, provides them with free transportation, and escorts them to the courtroom on the days of the trial or hearings (49, pp. 11-14).

According to the director of the program, all participants benefit. The police benefit from an improved image and from assistance in dealing with the victims of violent crimes, a part of their responsibility for which they are often ill-trained and from which they tend to shy away. Furthermore, AVW provides law enforcement authorities with built-in verification that the victims have been notified of their rights in regard to compensation under California State Victim Compensation Program. The district attorneys and courts, and hence the community, benefit because victims participate more and, being "more convenient and composed" (49, p. 14) are more likely to testify effectively in court. Community resource agencies benefit too, because AVW referrals broaden their outreach and justification. Finally, victims and witnesses benefit and hence, again, the community as a whole. The program operates three regional offices and three witness facilities located in the county's three municipal courthouses under a $130,000 annual budget, or less than 1 percent of what the county spends in processing offenders (49, p. 14).

The second program is the Victim-Witness Advocacy Program of Pima County, Arizona (92). In addition to crisis intervention, counseling, transportation, day care, and social service referrals, the Victim-Witness Advocacy Program (V-WAP) operates a witness alert system that puts victims "on alert" on the day of their scheduled trial so that they can appear in court shortly before they will be required to testify. This prevents unnecessary trips being made when victims' cases have been dismissed or continued, and reduces waiting time when their cases are heard, thereby substantially reducing these types of costs of participation. The V-WAP program notifies the victims and witnesses of the progress of their cases through the justice system all the way to disposition. Victims and witnesses are also informed that they can write to the judge with their input into the sentencing decision and can seek restitution (92, p. 5).

A cost-benefit evaluation attempted to quantify benefits generated by the program. Some were quantified, and most were qualitatively described. Table 17 (p. 66) presents the results of the evaluation (92, pp. 12-13). As Table 17 illustrates, the quantified benefits are those to the justice system.

TABLE 17

PROGRAM BENEFITS

Benefits	Annual Quantitative Benefits (dollars)	Qualitative Benefits
Benefits to Program clients	$13,781	Clients may reduce number of repeat victimizations.
Direct service provision, e.g., child care, counseling		Clients receive needed assistance and social service referrals.
Progress report on case		Victims/witnesses are kept informed of the progress of their case.
Savings in court time	11,244	Decreased frustration due to fewer unnecessary trips and reduced waiting time.
Benefits to law enforcement and county attorney		
Time savings to prosecutors	–	Prosecutors are relieved of many of the witness management responsibilities.
Time savings to law enforcement in crisis cases	4,877	V-WAP relieves police officers of some of their most onerous duties.
Time savings in court	97,320	Increase in police officer leisure time due to reduction in amount of off-duty court time.
Increase in successful prosecutions	–	Special assistance, such as day care, is provided to witnesses to increase their ability to appear in court. Witnesses are notified when to appear so as to save them time and unnecessary trips. V-WAP telephone number is stamped on subpoenas issued. Witnesses are notified of the progress of their case.
Increase in reporting of crime	–	Media presentations are geared toward increasing public's willingness to cooperate with criminal justice system, e.g., through reporting crime. Direct assistance to victims may influence willingness to report crime in the future.
TOTAL	$127,222	

Source: 92, pp. 12-13

Benefits in the form of alleviated costs of participation in justice system processing by victims and witnesses were only described qualitatively. Program costs amount to $121,560 annually.

As these two programs illustrate, public intervention can go a considerable way toward alleviating the secondary direct costs of crime: costs of participating in justice system processing. The increase in crime reporting in both counties as a result of their victim-witness aid and advocacy programs corroborates the previous assertion that one of the reasons most crimes are not reported is that in the absence of assistance or compensation, secondary direct costs apparently outweigh potential satisfaction of participating in justice system processing and seeing justice done.

SUMMARY

In this chapter, direct costs of serious juvenile crime to victims and witnesses alike have been considered. Direct costs were differentiated into two types: primary costs arising out of the crime itself, and secondary costs associated with participation in justice system processing. Both primary and secondary costs were further differentiated into easily quantifiable costs, primarily out-of-pocket losses, and not easily quantifiable costs, primarily psychic in nature. The state of the art of research into direct cost of serious juvenile crime was progressively assessed, beginning with attempts to estimate easily quantifiable costs. Different approaches to identifying these costs were classified into seven categories, each of which was described according to its merits and deficiencies. The econometric approach, the most promising of the seven, was explored in depth. However, it was concluded that given current data and procedural limitations, and the implicit emphasis on complete objectivity, the estimates derived thus far by such an approach are considerably flawed as well.

An estimation approach utilizing features of several of the seven approaches and including both subjective and objective developments was devised. This approach consisted in matching the most reliable cost estimates derived by other approaches to the Sellin-Wolfgang Index, and thereby generating a logarithmic cost function. The resulting average cost estimates by type of serious or index crime were then applied to national level estimates of crime using victimization data. The last portion of the chapter dealt with assessing the state of research into secondary direct costs of serious juvenile crime.

CHAPTER III

INDIRECT COSTS OF SERIOUS JUVENILE CRIME EXCLUDING JUVENILE JUSTICE SYSTEM PROCESSING COSTS

This chapter synthesizes the state of research into the indirect costs of violent juvenile crime, excluding processing costs (which are assessed in Chapter IV). Various types of indirect costs are examined, and estimates are compiled to the extent possible based on existing research and data.

As defined in Chapter I, indirect crime costs consist of those costs arising out of crime in the aggregate which are incurred by the community at the household level. Indirect costs comprise three different types of costs. The first are in the form of increased expenditures such as:

- increased prices attributable to business crime, business security costs, corporate compensation (in the form of time off for recovery or participation in justice system processing) of employee victims, and increased insurance payments; and
- residential and personal security.

The second type of indirect costs comprise increased taxes attributable to:

- public victim compensation by government programs such as unemployment compensation, welfare, and State and locally operated victim compensation assistance programs; and,
- juvenile justice system processing, which is treated separately in the next chapter.

The damages suffered by victims lower their welfare and are social costs, though often these are unmeasured and uncompensated costs. If victims are compensated, the taxes to compensate them are an out-of-pocket cost to the taxpayer, but represent a transfer of resources to the victim. The third type of indirect costs comprise diminished neighborhood quality of life as reflected in decreased property values.

INDIRECT COSTS OF CRIME: INCREASED ANNUAL HOUSEHOLD EXPENDITURES

The first type of indirect cost manifests itself in the form of increased annual household expenditures. These increases are due to price increases attributable to business crime, security, insurance costs, and private corporate compensation of employee victims. There are five reports in particular which will assist in assessing the impact of these types of indirect costs.*

The Cost of Crimes Against Business report estimated business crime in 1974 to amount to more than 20 billion dollars, or $137 for every adult in the country (97, p. 1). If this figure is retained and upgraded to 1977 dollars, using the Consumer Price Index, adjusted business crime amounts to 24.58 billion dollars, or $168.50 per adult. If these costs are considered at the household level, where each household consists of 1.75 adults, business crime costs amount to $295 per household.**

In Minneapolis, one out of every 20 retail business establishments experiences a robbery each year, and one out of six experiences a burglary (61, pp. 96 and 119). In Michigan, among 128,000 employment reporting sites, 18 percent experienced vandalism, 13 percent experienced burglary, 2 percent experienced robbery, and 2 percent experienced other violent crimes (56, p. 86). According to the National Crime Survey (110, p. 17), in 1975, the 6,709,000 commercial establishments in the country experienced 1,534,000 burglaries and 264,000 robberies. According to this data, 23 percent of all commercial establishments would have experienced a burglary if only one burglary per establishment were committed; and 4 percent would have experienced one robbery. If the National Crime Survey's estimates for commercial crimes are translated into aggregate direct costs (assuming, as before, that 18 percent of robberies involve serious injury), a total figure for commercial robbery and burglary of $3,252,740,000 is derived. This estimate is only one-eighth of the U.S. Department of Commerce estimate of $24.58 billion. Since most of these costs comprise psychic costs (and hence will not be passed on to households in the form of higher prices), it appears that business crime costs are primarily composed of costs imposed by other offenses, such as shoplifting, employee theft, vandalism, and bad checks. Indeed, The Cost of Crimes Against Business (97) concurs in this conclusion. According to a table compiled by the Small Business Administration, robbery accounts for only 3 percent of business crime costs and burglary accounts for 23 percent (97, p. 18). Shoplifting, vandalism, bad checks, and employee theft account for the other 74 percent (97, p. 18). For larger businesses, robbery and burglary account for an even smaller percentage of total losses.

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*These reports are: The Costs of Crimes Against Business (97); Community Crime Prevention: Crime in Minneapolis: Proposals for Prevention (61); Crime in Michigan: A Report from Residents and Employers (56); Electronic Trends: Private Security Systems (81); The Private Police: Security, and Danger (9).

**This estimate is corroborated by the National Retail Merchants Association, 100 West 31st Street, New York, New York. Telephone interview with Gordon L. Williams, General Manager, Operations Division.

Costs of Business Security

Predicast Incorporated in their report Electronic Trends In Private Security Systems estimates that in 1975 business security costs, personnel, and technology amounted to 6.250 billion dollars (81, pp. 5-10). They forecast that business security expenditures will grow 8.2 percent annually through 1990 (81, p. 4). If, however, their 1975 estimates are converted into 1977 dollars (virtually equivalent to the forecasted increase) a figure of 7.03 billion dollars is derived. Then, converting this figure into dollars per household as was done for business crime costs, a figure of $84.46 per household emerges. Finally, by combining business crime costs and business security costs, an estimate of $379.46 is produced.

Insurance Costs

It would be improper to include the total cost of crime insurance in the indirect household cost estimates. Inclusion of these costs would result in double-counting because those businesses with insurance coverage are compensated for crime losses by their insurance companies. The insurance companies then, in turn, distribute their losses among all firms purchasing insurance.

Of course, not all businesses are insured. Many companies, because of their location in especially crime prone areas, cannot secure insurance from private insurance companies. However, the businesses in this category who desire insurance can purchase it from the Federal government through the Department of Housing and Urban Development.

For the purposes of this analysis, the government should be treated as a private insurer. This will have the effect of shifting some indirect costs (i.e., taxes) to other indirect costs (i.e., added expenditures) and hence constitute a transfer which does not affect the level of total indirect costs. Furthermore, the amount of transfer will not be significant. By doing this it is then possible to develop a conservative estimate of insurance costs by estimating that one-half of all businesses experiencing crime losses, or three-quarters of crime losses, are insured. Then, a 10 percent rate of overhead and a 10 percent rate of return on that overhead must be assumed on net corporate expenditures to adjust insurance costs. Applying these rates to our crime estimates, a net insurance cost estimate of 2.028 billion dollars in 1977 dollars is derived. Transforming this estimate into average cost per household results in an estimate of $24.46 per household. Adding this to the previous running indirect expenditure cost provides a new combined total of $403.92.

Corporate Compensation to Employee Victims

The cost associated with business compensation of working days missed by employees because of victimization or participation in justice system processing as a victim or witness is the last element of indirect cost which induces increased household expenditures. While the compensation does constitute a true cost, it is a cost borne for the most part by the employees themselves. Typically, employees are allotted a certain number of working days they can miss and still be paid for. For any days missed beyond that, the employee will not be paid. Most employees use the sick and personal day allotments in the course of a year. If they must use such allotments to recover from psychic or physical injuries received in a violent crime, they will have to later work while they are sick, forego leisure opportunities, or bear an income loss. Typically, all allotted sick and personal days are accounted for by the business as an operating cost. None of these costs are passed on to households in the form of increased prices. Therefore, the estimate of indirect cost in the form of increased annual expenditures attributable to the impact of crime against business stands at $403.92. Table 18 (p. 74) summarizes how this estimate was derived.

INDIRECT COSTS OF CRIME IN THE FORM OF INCREASED HOUSEHOLD TAXES

As described in the beginning of this chapter, indirect costs in the form of increased household taxes consist of two types: (1) public compensation of victims for some direct costs incurred by governmental programs, such as unemployment compensation,

TABLE 18

INDIRECT CRIME COSTS IN THE FORM OF AVERAGE INCREASED ANNUAL HOUSEHOLD EXPENDITURES

TYPE OF COST	AGGREGATE (NATIONAL)	AVERAGE HOUSEHOLD COSTS
Crimes Against Business	$24.58 billion	$295.00
Business Security	7.037 billion	84.46
Net Insurance Costs	$ 2.028 billion	24.46
Total Costs	$33.645 billion	$403.92

Source: Estimated by the National Juvenile Justice System Assessment Center.

welfare, and State and locally operated victim compensation or assistance programs; and (2) juvenile justice system processing costs. The latter type will be analyzed separately in the next chapter; the former will be considered here.

Unemployment Compensation

Unemployment compensation is only available to those gainfully employed in the previous six months. Furthermore, a waiting period of two weeks typically exists before benefits can be received. The only victims eligible to receive these benefits, then, would be those who receive injuries of a serious enough nature to warrant their missing work for more than two weeks. An estimate of the number of such seriously injured victims who are employed at the time of the violent crime committed against them can be derived by organizing data contained in the National Crime Survey's Criminal Victimization in the United States 1975 report (110). The number of employees who were victims totals 516,131. Against this estimate can be applied a second estimate derived from the Manpower Administration, U.S. Department of Labor, for weekly average unemployment benefits of $64.25 during the 1974 calendar year, or $75.50 in 1977 dollars. Over the same period, each benefit claim lasted an average of 12.7 weeks.*

It is unlikely that all the potential claimants actually register for and receive benefits, even though they would all be eligible. The waiting period and the long waiting lines in a generally depressing environment undoubtedly deter some, while others are probably unaware of their eligibility. For the sake of an estimate, however, one can assume that 80 percent of the persons eligible to receive unemployment benefits actually registered and received them. Of the total number of persons eligible to receive benefits, 80 percent is equal to 412,905. This number is then multiplied by 12.7 weeks at an average payment of $75.50, yielding a total compensation payment of $395,913,950. These costs distributed at a household level amount to $4.75. Of this $4.75 per household, 28 percent (the proportion of violent crime attributed to juvenile offenders derived earlier) or 1.33 dollars represents the cost, on a household level, of unemployment compensation for victims of violent juvenile crime.

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*Both these figures are derived from the section entitled Employment and Training Services and Unemployment Insurance, page 69, the World Almanac, 1976 (73). These estimates were verified by telephone contact.

Welfare Payments

If a victim was unemployed previous to the violent crime, he would already be eligible to receive welfare benefits. If the victim was not employed at the time of the violent crime, it would actually be more advantageous to receive unemployment compensation. Therefore, no additional indirect cost is introduced when welfare recipients are victims of violent crimes.

Victim Compensation Assistance Programs

As demonstrated above, indirect costs introduced by public unemployment compensation payments to victims of violent crime are negligible when examined at the household tax level. The same is true for indirect costs associated with victim compensation programs operated on State and local levels. Total State and local program expenditures have not yet reached the $100,000,000 level. At the household level, such costs amount to less than one dollar. When one considers the aggregate amount of victim compensation in light of the aggregate direct violent crime cost estimates developed in the previous chapter, it can be seen that, in general, victims of violent crimes are compensated for only a small portion of the costs they incur.

INDIRECT COSTS OF DIMINISHED NEIGHBORHOOD QUALITY OF LIFE AS REFLECTED IN DECREASED PROPERTY VALUES

Whereas indirect costs associated with public compensation of victims through unemployment compensation and victim compensation programs turn out to be very small when analyzed at the household level, indirect costs of the diminished overall neighborhood quality of life as reflected in decreased household property values are very high indeed (61, p. 3). The known presence of a large amount of serious crime in a neighborhood diminishes quality of life. Residents and those passing through alike experience fear. Residents also experience a diminished level of services, since these are not likely to be maintained as well as in a crime-free neighborhood. Local businesses may move out, and neighborhood appearance may begin to deteriorate. Property values, reflecting the decreases in overall neighborhood quality of life, will begin to decrease relative to property in crime-free or less crime-ridden neighborhoods. As neighborhood property owners seek to move out, fewer potential buyers seek to move in (61, p. 3). This phenomenon is caused by basic economics. As supply (the number of neighborhood residences up for sale) increases relative to demand, prices fall. This can create a vicious circle, for as property values decline, there is less incentive to maintain property appearance, causing values to decline even more. Furthermore, the disruption of existing neighborhood cohesion caused by large-scale departures results in diminished neighborhood pride, with a concomitant decrease in incentive to maintain residential appearance.

The decrease in neighborhood property values, therefore, serves as a reliable indicator of the extent of diminution in neighborhood quality of life. There has been one study undertaken and completed that successfully measured the decrease in property values attributable to crime, on a neighborhood level. This study, entitled Community Crime Prevention (61), was undertaken by the Minnesota Governor's Commission on Crime Prevention and Control. As part of the study, dealing with the impact of crime on the residents of Minneapolis, the Commission evaluators performed regression analysis on variations in property values on a neighborhood level. Many different explanatory variables were examined, including: mean family income, percent residents at same address, and percent owner occupied. Two crime-related variables were found to be significant in explaining part of the variation. Those variables were: (1) percent of neighborhood residential units burglarized during a one year period; and (2) reported vandalisms per 1,000 population (61, p. 24). The regression analysis determined that for every 1 percent of residential units burglarized in a one year period, the average value of each owner-occupied unit was depressed about $553 (in 1975 dollars) relative to areas in the city characterized by low burglary rates (61, p. 25). Furthermore, each incident of vandalism per 1,000 population in the neighborhood was associated with a decrease in the average value of each owner-occupied unit by $172 (61, p. 25). When the different neighborhoods of Minneapolis were examined in light of these findings, it was determined that homes in areas of the city with highest burglary and vandalism rates experienced an estimated decrease in home value of $4,854 and $3,089, respectively, when compared with those at the city-wide average (61, pp. 24-25). In 1977 dollars the foregoing estimates amount to $5,465 and $3,478, respectively. ($623 per 1 percent increase in neighborhood burglary rates and $194 for each additional incident of vandalism per 1,000 neighborhood population.)

Residents of neighborhoods experiencing high rates of burglary and vandalism, therefore, experience very real and large costs, as reflected in the depression of housing values. Furthermore, a high incidence of violent crime, not included in the Minneapolis study, would surely depress neighborhood property rates even more.

Nonproperty-owning households living in crime-ridden areas also experience the same overall deterioration in neighborhood quality of life, but the amount of rent they pay will generally be lower than for similar quality housing in other neighborhoods. Thus, there is a trade-off between rents for similar quality housing and neighborhood quality of life. This is a major reason why residents of crime-ridden neighborhoods are generally low income households (counterposed against the observation that low income households generate crime more than upper income households). Assuming that there is no net emigration, city-wide impact of crime on housing values will likely be evened out. Those households suffering decreased property values will be offset by property owners in crime-free neighborhoods who experience increases in property values, as the residents from relatively crime-ridden neighborhoods seek to move in. Nevertheless, this does not alter the conclusion that residents of crime-ridden neighborhoods will not only tend to be the most likely to sustain direct costs of crime, including serious juvenile crime, but will also be the most likely to sustain decreased quality of life costs as well. And these will be, for the most part, low income households.

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CHAPTER IV

INDIRECT COSTS: JUVENILE JUSTICE SYSTEM PROCESSING COSTS FOR THE SERIOUS JUVENILE OFFENDER

This chapter examines the last remaining type of indirect cost associated with serious juvenile crime: juvenile justice system processing costs. Following the previously established methodology, processing costs will be examined first in the aggregate (i.e., national) level, and then at the household level. The individual average processing costs for separate processing functions will be developed in the following areas:

- police investigation and arrest
- detention
- intake and court processing
- correction's processing (probation, institutional treatment, community-based residential and nonresidential programming, and aftercare or parole).

DEVELOPING COST ESTIMATES

There are two methods of developing average cost estimates for functional programs. One is to begin at the bottom and build up using what is called a "workload" approach. Using the workload approach, separate tasks performed in each function or program are identified in terms of the resources required. Average resource cost is then multiplied by the time required for each task. Separate task costs are then summed up, including a central administrative cost (e.g., administrative salaries, central office space, administrative equipment) component to arrive at an overall average function or program cost. The second method of developing average cost estimates is to start at the top by examining a budget or actual expenditure statement from an agency, organization, or department. Once these documents are located, the central administrative costs are sorted out and the remainder subdivided into separate program costs or function costs in accordance with some relative input or output measure. Common measures that are used are the number of employees, or the number of accused or convicted offenders served. Ideally, the estimation objective chosen would determine which method is employed in developing cost estimates. In the real world, however, it is the quality of the data, for the most part, which determines the method that can best be employed. This latter method is designated as the disaggregative or "breakdown" approach.

This same dilemma was encountered in Chapter II in attempting to estimate the primary direct costs. In the case of primary direct costs, both deficient data and restrictive assumptions limit the employment of a purely objective estimation approach. As a result a second best, hybrid objective/subjective approach was used. So, too, in developing estimates of juvenile justice system processing costs, a similar deficiency of available data mandates that a less than ideal approach be used which combines the two methods just described.

The greater portion of juvenile justice system expenditure and budget data are in aggregate form, which will necessitate the use of a "breakdown" method. In some function cases, however, the expenditure data will be broken down to the resource cost level, and then built upwards to arrive at function or program level average cost. Justice system processing costs will first be developed in the aggregate, and then followed by a series of more detailed average costs estimates at the function and program level.

AGGREGATE COSTS OF JUSTICE SYSTEM PROCESSING

One of the great frustrations economists or cost analysts face, who are interested in developing a juvenile justice system cost picture, is that of finding aggregate processing costs (whether at the national, regional, State, or even county or municipal level) for the juvenile justice system as distinguished from the criminal justice system. Criminal justice and juvenile justice system costs are generally grouped together. Only one national level expenditure data base, for the juvenile justice system alone, is consistently collected and published. This data base is composed of expenditures for juvenile correctional and detention facilities published periodically (every year or two years) by the Bureau of the Census for the Law Enforcement Assistance Administration (LEAA). The most recent edition, published in October 1977, is entitled Children in Custody: Advance Report on the Juvenile Detention and Correctional Facility Census of 1975. The data in this volume will be explored later. First, national spending on criminal justice in the aggregate will be considered.

Table 19* (p.84) presents total justice system expenditures by sector and by type of government for 1976 (112, p. 23). Table 19 thus allows a dual perspective from which to analyze aggregate justice system costs: (1) how costs are financed among the four different levels of government: Federal, State, county, and municipal (although in Table 19 county and municipal are collapsed into one category--local); and (2) how expenditures are distributed among three principal justice system sectors: police, court, and corrections. In Table 19 expenditures are divided into direct and intergovernmental categories. Direct expenditures comprise all expenditures except those classified

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*Table 19 is taken from the principle source of aggregate justice system expenditure data: Expenditure and Employment Data for the Criminal Justice System 1976 (112, p. 23).

TABLE 19

PERCENT DISTRIBUTION OF EXPENDITURE FOR THE CRIMINAL JUSTICE SYSTEM, BY LEVEL OF GOVERNMENT (FISCAL YEAR 1976)

(Dollar amounts in thousands)

Activity	Amount				Percent distribution		
	All governments	Federal Government[2]	State governments	Local[1] governments	Federal Government[2]	State governments	Local governments
Total criminal justice system[3]	19,681,409	3,322,073	5,986,650	12,068,308	(X)	(X)	(X)
Direct expenditure	19,681,409	2,450,229	5,204,226	12,026,954	12.5	26.4	61.1
Intergovernmental expenditure	(3)	871,844	782,424	133,855	(X)	(X)	(X)
Police protection[3]	11,028,244	1,615,714	1,789,471	7,723,588	(X)	(X)	(X)
Direct expenditure	11,028,244	1,611,640	1,696,460	7,720,144	14.6	15.4	70.0
Intergovernmental expenditure	(3)	4,074	93,011	59,390	(X)	(X)	(X)
Judicial[3]	2,428,472	219,445	663,068	1,633,645	(X)	(X)	(X)
Direct expenditure	2,428,472	219,445	585,151	1,623,876	9.0	24.1	66.9
Intergovernmental expenditure	(3)	—	77,917	18,123	(X)	(X)	(X)
Legal services and prosecution[3]	1,047,929	149,402	253,591	653,502	(X)	(X)	(X)
Direct expenditure	1,047,929	149,402	247,723	650,804	14.3	23.6	62.1
Intergovernmental expenditure	(3)	—	5,868	3,142	(X)	(X)	(X)
Public defense[3]	331,102	103,718	78,622	157,364	(X)	(X)	(X)
Direct expenditure	331,102	103,718	70,139	157,245	31.3	21.2	47.5
Intergovernmental expenditure	(3)	—	8,483	1,279	(X)	(X)	(X)
Corrections[3]	4,385,512	285,973	2,589,609	1,678,879	(X)	(X)	(X)
Direct expenditure	4,385,512	256,352	2,474,783	1,654,377	5.9	56.4	37.7
Intergovernmental expenditure	(3)	29,621	114,826	49,547	(X)	(X)	(X)
Other criminal justice[3]	460,150	947,821	612,289	221,329	(X)	(X)	(X)
Direct expenditure	460,150	109,672	129,970	220,508	23.8	28.3	47.9
Intergovernmental expenditure	(3)	838,149	482,319	2,374	(X)	(X)	(X)

Note: Data in "Local governments" column are estimates subject to sampling variation; see text for data limitations.

— Represents zero or rounds to zero.
X Not applicable.

[1] Local governments data are estimates subject to sampling variation; see text for data limitations.

[2] Federal Government data are for the fiscal period beginning July 1, 1975 and ending June 30, 1976.

[3] The total line for each sector, and for the total criminal justice system, excludes duplicative intergovernmental expenditure amounts. This was done to avoid the artificial inflation which would result if an intergovernmental expenditure amount for one government is tabulated and then counted again when the recipient government(s) ultimately expend(s) that amount. The intergovernmental expenditure lines are not totaled for the same reason.

Source: 112, p. 23

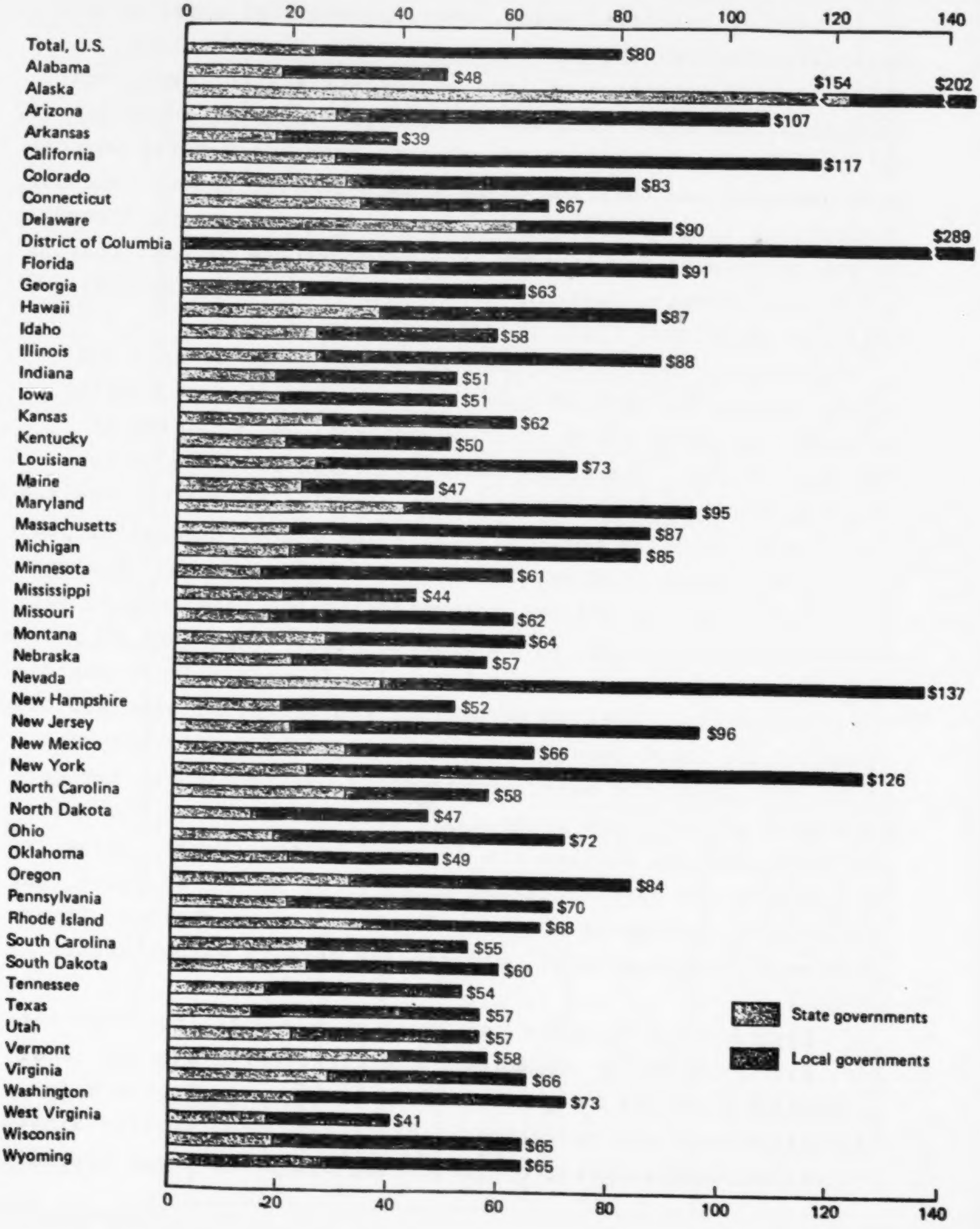
as intergovernmental, including: (1) current operating costs, which include salaries, wages, fees, purchase of supplies and materials, contractual services; and (2) capital outlays, which include purchases of land and existing structures, construction, and major equipment. Intergovernmental expenditures, on the other hand, consist of payments from one general purpose government to another, including grants-in-aid, shared revenues, payments in lieu of taxes, and amounts for services performed by one government for another on a reimbursable or cost sharing basis (for example, payments from one government to another for boarding prisoners) (112, p. 381).

Examining Table 19 further (p. 84), it can be seen that of the almost $20 billion spent on justice system processing in 1976, the major share (over 60 percent) was expended at the local level. Examining the destination of these monies, it is apparent that at the aggregate level, the police received the lion's share (56 percent), while the courts (including judicial legal services, prosecution, and public defense) received 19 percent, and corrections accounted for the remaining 25 percent. Cross analyzing, it is apparent that 70 percent of police expenditures are spent at the local level, primarily by municipal governments. Over 60 percent of court expenditures are also spent at the local level, although here it is county governments that spent the major portion (63). Expenditures for correctional services are primarily a responsibility of the State and over half the dollars are expended at that level. Finally, to complete the specialization picture, it should be noted that the Federal government accounts for the largest share of intergovernmental expenditures, principally through disbursements of LEAA.

Expenditures by State and local governments (for that matter, disbursements by LEAA among the different State and local governments) are by no means uniform in nature. Figure 8 (p. 86) illustrates the variation in State and local justice system processing expenditures, by presenting State and local expenditures,

FIGURE 8

PER CAPITA DIRECT EXPENDITURE FOR CRIMINAL JUSTICE ACTIVITIES OF STATE AND LOCAL GOVERNMENTS, FOR STATE AREAS (FISCAL YEAR 1976)



Source: 112, p. 3

by State, on a per capita level (112, p. 3). Although local governments typically bear the greater expenditure burden, in Alaska, North Carolina, Rhode Island, and Vermont, it is the State that assumes the major share. There is considerable disparity in expenditure levels, ranging from $39 per capita in Arkansas to $289 per capita in the District of Columbia.

Continuing the procedure of analyzing aggregate indirect costs, Table 20 (p. 88) presents aggregate expenditures for justice system processing at the household level, in 1977 dollars, our common base unit of comparison. Total Federal, State, and local expenditures at the household level amount to $261.73 per capita. While no breakdown for juvenile justice expenditures exists, one can generate a breakdown by applying the following statistical relationships to the estimates contained in Table 19 (p. 84): (1) according to the FBI's Uniform Crime Reports (105, p. 181), juveniles accounted for 22 percent of all the arrests in 1976; (2) according to the Sourcebook of Criminal Justice Statistics (34, p. 167), juveniles accounted for approximately 30 percent of correctional expenditures in 1975; and (3) in lieu of any data regarding percentages of current expenditures attributable to juveniles, the midpoint of the range can be employed by using the two previous percentages, 22 and 30 percent. Thus, one can assume a current rate of 26 percent. Applying these percentages to the aggregate expenditure figures contained in Table 19 (p. 115), aggregate expenditures for the processing of juvenile offenders by police, courts, and corrections amount to $2.426 billion, $.9125 billion, and $1.316 billion, respectively, for a total of $4.685 billion. At the household level, this amounts to $56.23. When it is further considered that approximately 38 percent of all juvenile arrests involve an index crime (105, p. 181), and one-fourth to one-third of juvenile courts and corrections spending (34, p. 167), estimated juvenile justice system processing costs for 1976 amount

TABLE 20

STATE AND LOCAL CRIMINAL JUSTICE EXPENDITURES PER HOUSEHOLD, FISCAL YEAR 1976

(1977 DOLLARS)

STATE AND LOCAL CRIMINAL JUSTICE					
Total, U.S.	$223.20	Kansas	$172.98	North Dakota	$131.13
Alabama	133.92	Kentucky	139.95	Ohio	200.88
Alaska	563.58	Louisiana	203.67	Oklahoma	136.71
Arizona	298.53	Maine	131.13	Oregon	234.36
Arkansas	108.81	Maryland	265.05	Pennsylvania	195.30
California	326.43	Massachusetts	242.73	Rhode Island	189.72
Colorado	231.57	Michigan	237.15	South Carolina	153.45
Connecticut	186.93	Minnesota	170.19	South Dakota	167.40
Delaware	251.10	Mississippi	122.76	Tennessee	150.66
District of Columbia	806.31	Missouri	172.98	Texas	159.03
Florida	253.89	Montana	178.56	Utah	159.03
Georgia	175.77	Nebraska	159.03	Vermont	161.82
Hawaii	242.73	Nevada	382.23	Virginia	184.14
Idaho	161.82	New Hampshire	145.08	Washington	203.67
Illinois	245.52	New Jersey	267.84	West Virginia	114.44
Indiana	142.29	New Mexico	184.14	Wisconsin	181.42
Iowa	142.29	New York	351.54	Wyoming	181.42
		North Carolina	161.82		

Federal, State, & Local Expenditures: $261.73

Source: Computed based on Figure 8 (p. 119) to approximately $1.4 billion in the aggregate, and $17 on a household level for serious juvenile crimes.

AVERAGE JUVENILE JUSTICE SYSTEM PROCESSING COSTS

Juvenile justice system processing can be considered to comprise five different stages or function areas: police investigation and arrest, intake and court processing, detention, corrections, and aftercare (parole). Corrections can be subdivided into institutionalized treatment, community-based residential treatment, and community-based nonresidential treatment, each consisting of public (State and local government operated) and private programs. Each of these function areas will be explored, and average juvenile justice system processing cost estimates derived. First, it is important to conceptually explore what is entailed in averaging processing costs.

Two conceptual average cost overviews stand out among those studies that are considered the best representatives of the cost research literature. The studies are: Cost of Maine State Institutions (48), produced by the Maine State Bar Association (1977), and "Cost Effectiveness of Residential Community Corrections: An Analytical Prototype" (35), which is a condensation of Gray, Conover, and Hennessey's report by the same title for the Minnesota Governor's Commission on Crime Prevention and Control.

The conceptual average cost overview developed in "Cost Effectiveness of Residential Community Corrections: An Analytical Prototype" (35, p. 378) is presented in Table 21 (p. 90). Table 21 presents three alternative average cost measures: input cost, output cost, and outcome cost. Input cost reflects only resource cost, comprising the sum of all resources used within a particular function or program. Average daily or annual cost is the typical input measure used. Output cost, or cost per case, represents the next higher rung up the cost

TABLE 21

CONCEPTUAL OVERVIEW OF COST ANALYSIS

	FOCUS OF ANALYSIS		
	How	What	Why
Alternative Conceptualizations			
	Activity, Task, Inputs	Objectives, Subgoals, Intermediate Products, Outputs	Goals, Final Goals, Final Products, Outcomes
Example	Group Counseling, Food and Clothing, Recreation	"Treatment" or "Rehabilitation"	Reduced Recidivism
Cost Measure *			
	Input Cost	Output Cost	Outcome Cost
Example	Cost per Day	Cost per Case	Cost per Reduced Arrest

Source: 35, p. 378.

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*Note: For definition of these three types of cost measures, please see narrative, pp. 125 and 129 comparison ladder by introducing a time variable into the cost measure. Output costs can be developed at the function or program level from the bottom up by multiplying the input costs (e.g., costs per day, by average length of stay). Output costs can also be derived from the top down by dividing total program costs by output (e.g., by number of clients or offenders served). The third average cost measure, outcome cost, projects the level of cost analysis or cost comparison, into a substantially more complex measure of efficiency. These cost measurement techniques are called cost-benefit and cost-effectiveness analysis.

The second conceptual cost overview alluded to previously involves the classification structure within input costs. Input costs can be subclassified as:

(1) Primary expenditures, which are made by Federal, State, or local governments for the capital and operating needs of the function area or program, and which, with few exceptions, are listed in the typical function area or program budget.

(2) Secondary costs, which, with few exceptions, are not present in the function area or program budget, but which are attributable to the ongoing operation of the particular function or program.

(3) Tertiary costs, which may be measureable (although perhaps not in dollars), but which are beyond the scope of this study. Others might want to consider them nonetheless, if for no other reason than for the sake of completeness.*

Primary input costs consist of: (1) operating (recurring) costs such as: salaries and wages, benefits, rents or leasing costs, supplies and the like; and (2) capital (nonrecurring) costs such as one-time outlays for construction or purchase of land and existing facilities or purchase of major equipment. Secondary costs are less obvious costs associated with processing, and costs in the form of governmental revenue losses incurred by isolating offenders from society. The following eight components were secondary costs of institutionalization cited by the Costs of Maine State Institutions study (48, pp. 133-134):

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*This input cost stratification design was utilized in the Costs of Maine Institutions study (43, pp. 42-43).

(1) Allocation of indirect or secondary cost services provided to institutions by other programs within the State Department of Corrections.
(2) Opportunity costs of lost taxes on wages not earned by inmates during incarceration.
(3) Opportunity costs of lost social security taxes not paid by inmates during incarceration.
(4) Opportunity costs of lost tax revenue on land used by corrections.
(5) Public assistance to dependents of inmates.
(6) Other correctional subsidy costs.
(7) Manpower training costs.
(8) The opportunity costs of spending dollars on correctional programs (i.e., the interest which could have been earned if dollars expended on corrections had instead been invested and earned interest [48, p. 175]).

As stated previously, juvenile justice system processing can be divided into function areas. At this time, it is important to develop cost estimates for arrests, or police processing of serious juvenile offenders.

Police Processing Costs

Police and sheriffs' departments vary considerably in their organization of field activity. Some have officers perform both general investigation and patrol activities for adults and juveniles alike. Some have separate juvenile and adult bureaus.

Others have separate bureaus by type of crime: homicide, rape, robbery, aggravated assault, and various property crimes.

Ideally, in terms of developing cost estimates for police processing of serious juvenile offenders, one would study a sample of departments with separate juvenile bureaus which handle all juvenile cases. Then for each department it would be important to determine the average time expended in investigating, solving, and clearing each type of serious crime. Finally, the average time expended would be multiplied by a "loaded" police cost, which would include a central administrative cost component.*

In actuality, data on police processing, either in terms of time or cost, are generally rare. There are two studies, however, which have estimated police processing costs suitable for our purposes. The first, A Study of the Cost of Enforcement of Selected Statutory Offenses (46) estimated costs associated with the investigation and solution (clearance) of all Arizona statutory offenses. Five law enforcement agencies were studied over a two-month period. For each agency, time estimates for each type of crime were compiled and multiplied by an average hourly cost figure. The cost figure included administrative costs as well as police salary and fringe benefit costs, to yield processing cost estimates for each type of crime. Estimates in 1977 dollars for the Phoenix and Tucson police forces are presented in Table 22 (p.94). Average processing costs per case for the four major violent crimes (homicide, rape, robbery, and aggravated assault) range from approximately $106 to $421. Computing the mean of each pair of figures (for the two cities) yields average police processing cost estimates for the four major violent crimes of: homicide, $324; rape, $213; robbery, $141; and aggravated assault, $112.

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*Loaded police cost refers to the average police officer cost per hour (including salary and fringe benefits) and a proportionate assignment of central administrative costs.

TABLE 22

COMPARATIVE COSTS OF LAW ENFORCEMENT BY OFFENSE, BY AGENCY (1977 DOLLARS)

OFFENSE	PHOENIX POLICE	TUCSON POLICE
Murder & non-negligent manslaughter	226.15	420.91
Forceful rape	191.03	224.29
Statutory rape	169.95	164.78
Armed robbery	133.49	188.26
Strong-arm robbery	117.03	126.05
Aggravated assault	106.05	116.17
Simple assault	70.04	49.05
Grand theft	126.60	111.55
Petty theft	78.17	50.98
Auto theft	88.93	80.06
Burglary	127.35	97.32
Vandalism	55.11	31.40
Receiving stolen property	194.53	91.20
Prostitution*	111.99	93.82
Marijuana - possession*	157.21	71.77
Marijuana - sale*	180.48	110.28
Other drugs - possession*	182.90	79.40
Other drugs - sale*	191.24	129.93
Hit & run with personal injury	148.21	120.64
Hit & run with property damage only	105.40	60.86
Homosexuality*	132.40	82.69
Theft by fraud	147.33	113.93

Source: 46, pp. 3-4

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*"victimless crimes"

The estimates contained in Table 22 (p. 133) are particularly interesting when they are considered from a resource allocation point of view. First, there must be an assumption that one of the primary functions of law enforcement is crime control or, more specifically, the reduction of societal costs of crime. Then, if the average cost estimates are examined in Table 22 (p. 94) against the backdrop of the average primary direct cost estimates of violent crime which were developed in Chapter II, one immediately sees that the enormous disparity in direct costs between violent crimes and property crimes is not reflected in police processing cost estimates. Processing costs estimates are only slightly higher for violent offenses than for nonviolent ones. One should also know how many fewer offenses there will be for an additional clearance. The product of this quantity times the cost per offense estimated in Chapter II will yield the detriment in victim damages per clearance and can be compared to the cost of processing a clearance in Table 22 (p. 94). The processing costs, of course, do not include other criminal justice system costs such as prosecution, the judiciary, and corrections. What Table 22 (p. 94) illustrates in particular is the inordinately high processing costs associated with victimless crimes as compared to property and especially violent crimes. Victimless "crimes," such as prostitution, homosexuality, and possession of drugs, impose little or no cost to society at the household level, while the primary direct costs of major property crimes, as estimated in Chapter II, range from $611 to $2,311. Similarly, the cost of violent crimes range from $2,341 to $178,246 at the household level. The average processing cost estimates for the Phoenix Police Department for the victimless crimes cited approximate or exceed average processing costs for aggravated assault and robbery. Also, victimless crime estimates are not much less than average processing cost estimates for homicide and aggravated assault. Using these cost estimates as indicators of allocations of police resources, it is possible to conclude that the current allocation of police resources in Phoenix is significantly out of line in terms of relative direct costs imposed by different types of crime, while Tucson is much more in line with the direct costs imposed.

A second estimate of police processing costs was developed in an unfortunately brief paper entitled "Cost Analysis of the Juvenile Justice System" (78). The cost estimates developed covered all juvenile arrests in Denver over a one year span and included an indirect administrative cost component. The Denver Police Department has a separate juvenile bureau but juvenile arrests are made by all patrol officers. The average processing costs for the arrest of juveniles was consequently developed by using the breakdown approach discussed previously (in contrast to the Phoenix and Tucson processing elements which were derived using the workload approach). The average police processing cost per juvenile arrested was estimated to be $304 in 1971, or $456 in 1977 dollars (78, p. 3). The substantial difference in this estimate and the previous Arizona estimate is reconciled when it is noted that Arizona police processing costs include police effort for all crimes, solved and unsolved, while these figures look only at costs associated with arrests. Assuming that approximately 50 percent* of reported violent crimes are solved or cleared, the Arizona estimates can be upgraded by 50 percent, yielding conservative estimates of police processing costs per violent crime of: homicide, $486; rape, $320; robbery, $212; aggravated assault, $171. These higher estimates for crimes cleared by arrest are substantiated by a study of police processing entitled The Criminal Investigation Process (4, pp. 229-230). In this study, the authors discovered that for crimes cleared, the majority (60 to 75 percent) of police time was expended after clearance in reporting and preparing the case or petition.

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*The actual figure may be slightly lower, since this is based on UCR clearance rates which include some clearances by means other than arrest (105, p. 160).

Intake and Court Processing Costs

Court intake and processing involves many steps, including: intake interviews by court or probation personnel, temporary detention in many cases, detention hearings, preparation of probation reports, preparation of petitions by the prosecutor, plea hearings, waiver hearings in some cases to determine whether the case shall be transferred to adult criminal court, adjudicatory hearing (or trial) in cases where there is no admission of guilt, preparation of dispositional reports for the judge's consideration in making his disposition, and the disposition hearing. These procedures vary and are called by different names in different jurisdictions.

Ideally, in order to develop reliable intake processing cost estimates, each of the separate sub-functions would be costed out in terms of the average time expended per sub-function, multiplied by the unit time spent by the court officer, probation officer, or juvenile judge. Cost per unit time simply means that besides the salary and fringe benefit costs and related supplies, indirect administrative costs and supplies are included also. This method of determining costs amounts to a workload approach that would be employed to yield a comprehensive average cost estimate.

In actuality, however, little data exists to document the average time required for each function, and only one study was encountered which developed a court processing cost estimate utilizing the workload approach. Further, in the one study found, the court intake processing and predisposition investigation components were the only tasks costed out (40, p. 50). These estimates and the methodology employed in their derivation are presented in Table 23 (p. 98). Average cost per intake amounted to $49 and average cost per predisposition investigation totaled $292. Both estimates, as evidenced by their derivation methodology, include indirect administrative costs as well as direct costs. The other intake costs which

TABLE 23

DERIVATION OF INTAKE AND PRE-DISPOSITION INVESTIGATION: MICHIGAN JUVENILE JUSTICE SERVICES (1977 DOLLARS)

COURT WORKER ANNUAL COST		SUPERVISOR ANNUAL COST		SECRETARY ANNUAL COST	
Average salary	$13,636	Average salary	$17,045	Average salary	$ 7,500
Payroll assessment	2,045	Payroll assessment	2,557	Payroll assessment	1,125
Transportation, supplies	1,364	Transportation, supplies	1,364	Office supplies	1,602
1/3 of secretary, each $10,227	3,409	1/3 of secretary	3,409		
1/6 of supervisor, each $24,375	4,063				
Total	$24,517	Total	$24,375	Total	$10,227

SERVICE	BASIS OF SERVICE	AVERAGE COST
Intake	1 worker/500 cases/year	$49/case
Predisposition Investigation	1 worker/7cases/month (84 per year)	$292/case

Source: 40, p. 50

were discovered or developed during the investigation of the literature phase of this assessment were all derived using a cost breakdown approach (72, pp. 87-91; 78, p. 9; 84, p. 110; and 93, p. 54). These estimates are presented in Table 24 (p. 100). The court intake processing cost estimates contained in Tables 23 (p. 98) and 24 (p. 100), when compared, exhibit considerable variance. The three average cost estimates of intake are $49, $140.25, and $160 as compared to the two estimates of juvenile court processing which are $105 and $467. Nevertheless, these two sets of figures yield ranges. By taking the midpoint of each range, estimates of $118 for intake and $286 for juvenile court processing, per case, are derived.

Processing of Juveniles Charged With Serious Offenses in Adult Courts

Until recently, discretionary waiver of juveniles charged with a serious offense to adult courts was a relatively rare phenomena, except in some States where certain offenses *required* waiver. Recently, however, several States have passed statutes expanding mandatory waiver for older juveniles charged with violent offenses.*

A recent trend in court processing, which affects processing costs, is the increased participation of the county prosecutor or district attorney in juvenile court processing. Concomitant with the entry of the prosecutor are plea bargaining and generally stiffer sentences for juveniles judged (rather than pleading) guilty (54). Entry of the prosecutor increases processing costs by the "loaded"** cost of his time. An additional system cost imposed by prosecutorial participation is

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*For a more detailed discussion of waiver practices and recent legislation regarding waiver, see *Volume III, Part A, Legislation and Part B, Jurisdiction* of the report series entitled, *A National Assessment of Serious Juvenile Crime and the Juvenile Justice System: The Need for a Rational Response*.

**"Loaded" costs refer to the per unit time of the prosecutor that has been increased proportionately with administrative costs.

TABLE 24

INTAKE AND COURT PROCESSING COSTS (1977 DOLLARS)

TYPE OF ESTIMATE	AMOUNT, 1977 DOLLARS	SOURCE
Probation intake	$ 166.00	New York Senate Research Service[1]
Family court processing	467.00	
dismissal	$307	
disposition	$614	
Intake	140.25	Parker[2]
Court processing	104.86	
Adult City Court Costs:		
Dismissal	8.87	Pryor, et al.[3]
Plea bargaining	36.80	
Bench trial	857.89	
Jury trial	1,864.50	
Preliminary, sentencing hearing	104.88	
Presentence investigation	132.90	Thalheimer[4]

Source: Based on computations from the following documents:

(1) 72, pp. 87-91; (2) 78, p. 9; (3) 84, p. 110; (4) 93, p. 54

higher police processing cost, if police are encouraged to overcharge (so that the prosecutor can have greater bargaining leverage) and hence to justify (to the extent that they can) those charges (72). Finally, another related system cost is a higher correctional processing cost per case associated with stiffer sentences.

Police and Court Processing Costs Combined

In addition to the previously presented police and intake/court processing cost estimates, two other sets of pre-correctional cost estimates were encountered in the course of the assessment investigation (55, pp. 76-77 and 52, p. 225). These estimates are contained in Table 25 (p. 102). These two sets of estimates indicate that the higher cost figures for intake and juvenile court processing may be more reflective of actual costs. The police and court processing estimates, for adults and juveniles combined, when the higher costs of adult court processing are taken into account, seem well in accord with our previous separate police and intake in court processing estimates.

In addition to intake and processing of juveniles in juvenile or adult court is processing conducted under contract by privately operated programs. Such programs are both relatively new and rare. As these programs constitute special innovative programs, they will be discussed in Chapter V.

Detention Processing Costs

In the last decade, the numbers of juveniles placed in secure detention have decreased (106, 107). This is due to three major policy shifts, all in great part catalyzed by the 1974 Juvenile Justice and Delinquency Prevention Act as amended. These are: (1) an increase in the number of alternatives to secure detention; (2) lesser use of jails for secure detention (some States statutorily forbid detaining juveniles in the

TABLE 25

COMBINED POLICE AND COURT PROCESSING COSTS (1977 DOLLARS)

TYPE	AMOUNT	SOURCE
Juvenile		Mech[1]
Denver	$ 886	
California	$ 938	
Juvenile and adult combined		Matthews Steinburg Bennet[2]
homicide	$1,690	
rape	$1,369	
robbery	$1,263	
aggravated assault	$1,102	
burglary	$1,067	
larceny over $50	$1,018	
auto theft	$1,227	

Sources: Computed based on the following documents:

(1) 55, pp. 76-77; (2) 53, p. 225

same cell or area as adults); and (3) a reduction in the number of status offenders* detained (106, 107).

For many years the extent to which juveniles were detained was largely unknown. In the early seventies, however, several important studies of detention emerged. The most extensive of these is Under Lock and Key: Juveniles in Jails and Detention (88). Sarri studied detention practices across the country, using as a primary data base the 1970 LEAA jail census and Children in Custody: A Report on the Juvenile Detention and Correctional Facility Census in 1971. One of the products of Sarri's cross-tabulation and analysis is Table 26 (p. 104), "Numbers and Rates Per 100,000 Population of Juveniles in Jail (1970) and Detention (1971), by State" (88, p. 25). As can be seen in Table 26 (p. 104), there is enormous variation in detention rates among the States. California dominates in terms of numbers of juveniles in detention, New York accounts for one-half of all juveniles in jail, but this is largely due to the fact that under New York law, 16- and 17-year-olds are processed as adults. Nevertheless, the variation is astonishing; jail rates per 100,000 range from .77 to 27.07 for the next highest State behind New York. Detention rates per 100,000 range from .51 to 57.94 for the State next in line behind California. This is in addition to the variation in average costs which have yet to be explored.

Another study of detention practices, this time on a State level, was conducted in a 1972 study by the Institute of Government at the University of Georgia. This study surveyed six newly built regional detention facilities to determine if youth were, on the average, held for longer periods awaiting disposition or if youth were detained longer in Georgia than nationally. Data were collected over a 15-month period for a sample of over 1,000 youth. Analysis of the reason

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*A status offense is an act which if committed by an adult would not be a criminal law violation. Status offenders are also referred to as persons or children in need of supervision--PINS or CHINS.

TABLE 26

NUMBER OF JUVENILES IN JAIL (1970) AND DETENTION (1971), BY STATE

State (Ranked according to child population 5-17, 1970)	In Jail[4] Number[1]	In Jail[4] Rate per[3] 100,000	In Juvenile Detention Number[2]	In Juvenile Detention Rate per[3] 100,000
California	188	3.76	3,761	75.33
New York	4,550	104.47	442	10.15
Texas	169	5.63	291	9.70
Pennsylvania	254	8.69	474	16.22
Illinois	106	3.70	585	20.46
Michigan	29	1.18	925	37.72
Ohio	203	7.20	598	21.22
New Jersey	126	7.01	467	26.00
Florida	142	8.83	753	46.83
Massachusetts	—	—	203	17.09
Indiana	249	17.97	233	16.82
North Carolina	37	2.79	78	5.90
Georgia	132	10.79	484	39.57
Wisconsin	79	6.57	92	7.66
Virginia	172	14.38	210	17.54
Missouri	55	4.65	206	17.43
Minnesota	73	6.95	60	5.71
Louisiana	61	5.87	146	14.05
Maryland	106	10.22	66	6.36
Tennessee	79	7.89	134	13.39
Alabama	87	9.33	130	13.95
Washington	40	4.55	222	25.26
Kentucky	78	9.25	79	9.37
Connecticut	—	—	35	4.56
Iowa	41	5.52	32	4.31
South Carolina	41	5.70	11	1.53
Oklahoma	48	7.51	16	2.50
Mississippi	74	11.67	30	4.53
Colorado	47	7.99	148	25.17
Kansas	75	13.13	126	22.07
Oregon	59	11.04	160	29.96
Arkansas	45	9.05	15	3.02
Arizona	33	6.80	140	28.87
West Virginia	52	11.76	36	8.14
Nebraska	44	11.36	4	1.03
Utah	10	3.20	64	20.51
New Mexico	46	14.83	51	16.45
Maine	2	.77	33	12.74
Rhode Island	—	—	38	17.01
Hawaii	—	—	20	9.80
Idaho	42	21.10	—	—
Montana	53	27.04	1	0.51
New Hampshire	—	—	43	22.74
South Dakota	26	13.90	17	9.09
North Dakota	3	1.71	1	0.57
Delaware	—	—	44	29.53
Nevada	15	11.90	73	57.94
Vermont	—	—	12	10.25
Wyoming	25	27.17	—	—
Alaska	2	2.27	7	7.95
TOTALS	7,798	r_s = .04	11,796	

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[1] LEAA Jail Census, March, 1970

[2] LEAA, Children in Custody: A Report on the Juvenile Detention and Correctional Facility Census of 1971. Washington, D.C., LEAA, 1974, pp. 32-33.

[3] Rates were calculated per thousand population, ages 5-17, U.S. Census Publication, General Population Characteristics: Final Report PC (1)-B, 1970.

[4] Jails are operated by the state government, not locally administered.

[5] Data for the average daily population of youth held in state detention facilities in Maine, Rhode Island, New Hampshire, and Vermont were obtained directly from the state directors of juvenile corrections or from the director of each facility. These averages are not entirely comparable with the census taken on a given day, but they do provide a basis for a relatively comparable estimate of the rates of detention.

Source: 88, p. 25

for detention revealed that 54 percent were charged with status offenses or were in need of probation; 5 percent were charged with victimless traffic offenses; 2 percent were charged with minor property crimes; 35 percent were charged with serious property crimes; and only 3 percent were charged with serious crimes against a person. Average length of stay in the six centers was 24.46 days. Twenty-two percent were held less than four days, while 30 percent were detained for longer than 30 days (31). Table 27 (p. 106) shows length of stay in detention by type of offense (88, 21). On a national level, length of stay appears to be an approximate national average, although there is no national data on average detention stay collected and distributed which can corroborate this estimate.

In addition to secure detention facilities, which range from small programs to large institutions, many jurisdictions now have alternative detention programs in the form of non-residential "home-detention" programs, foster home programs, and relatively non-secure group detention homes or centers (including "Attention Homes"). "Home detention" programs are typically administered by juvenile court probation departments. Surveillance is maintained by a minimum of one in-person contact a day and daily telephone or personal contacts with youth's parents, schoolteachers, or employers (77, p. 81). Juveniles charged with serious offenses are not placed in such programs nearly as often as juveniles charged with lesser offenses (77, pp. 84-85). The "Attention Home" format originated in Boulder, Colorado. The program format is so named because: "the term attention, as distinct from detention, signifies an environment which accentuates the positive aspects of community interreaction with young offenders. The homes are structured enough for necessary control of juveniles but far less restrictive and less punishing than jail" (77, p. 105). At least 14 Attention Homes are now operating in several States.

TABLE 27

LENGTH OF STAY IN DETENTION IN GEORGIA, BY TYPE OF OFFENSE
(IN PERCENTAGES)

LENGTH OF STAY (in days)	TYPE OF OFFENSE				
	Crimes Against Persons	Serious Property	Minor Property	Victimless or Traffic	Status or in Need
0 - 14	39%	48%	42%	56%	52%
15 - 30	31	22	42	20	16
31 - 60	13	22	16	13	18
61 and longer	18	8	0	11	13

Sources: 21 and 88

In addition to these programs are group or shelter home programs and foster home programs which have all been in existence as detention alternatives for some years, but which have proliferated in response to increased use by the courts in recent years. Comparative costs of these programs can be examined. Table 28 (p. 108) presents average daily secure cost estimates in each of the six regions in Massachusetts (50, pp. 67-85). As Massachusetts illustrates, there can be considerable variation in secure detention costs within a State as well as among programs in different States. Table 29 (p. 108) presents detention cost estimates derived in a national study of detention entitled Use of Secure Detention for Juveniles and Alternatives to Its Use (77, p. 129).

Even within the alternative non-secure detention program types there is considerable variation. The major part of this is attributable to variation in staff/detainee ratios and the number and type of services provided by the program. Some variation is also attributable to regional differences in resource cost, especially average salaries and wages, as labor costs typically constitute at least 90 percent of program costs (77, pp. 128-130).

Another source of variation in average input costs of detention is the use of jails for detaining juveniles. Rosemary Sarri's Under Lock and Key: Juveniles in Jails and Detention (88) estimated in 1974 that as many as 500,000 juveniles were processed through adult jails each year in the United States. Two studies of jail processing, including detention, yield surprisingly similar cost estimates of jail detention of $23.27 per day and $24 per day, respectively, in 1977 dollars (22, p. 63).

When jails are included among secure detention programs it is difficult to establish whether residential alternatives are less costly than secure detention. Nonresidential programs and home detention programs, for example, are significantly

TABLE 28

MASSACHUSETTS AVERAGE DAILY SECURE DETENTION COSTS, BY REGION (1977 DOLLARS)

REGION	AVERAGE DAILY COST
I	$ 92.45
II	25.00
III	56.15
IV	103.57
V	47.55
VI	40.07
Average	$ 60.80

Source: 50, pp. 67-85

less expensive than secure detention (28, p. 281). As stated previously, however, several States have passed or are in the process of passing legislation prohibiting the detention and sentencing of juveniles to the same jails in which adults are kept. When jails are excluded as secure detention programs for juveniles, residential alternatives generally cost substantially less, on the average, than secure detention programs.

Average Detention Processing Output Costs

It is not really possible to compare the costs of different types of detention processing until average output costs are developed. Referring to the average input cost estimates contained in Table 29 (p. 110) for example, it is immediately clear that average input costs of home detention are considerably less than input costs of secure detention in the same jurisdiction (77, p. 129). The average input costs for five home detention programs were less than 40 percent of the cost of secure detention programs. However, unless average lengths of stay for each program are known, it is still not possible to compare the programs in terms of cost per case, or cost per detention stay. Unfortunately, the data on average length of stay by detention program type are not currently available.

Correctional Processing Costs

Correctional processing takes many forms. Juveniles penetrating the justice system all the way to the dispositional hearing can be: (1) released with a suspended sentence or fine, (2) placed on probation with or without conditions of restitution or community service, (3) placed directly in an alternative nonresidential "day-care" community-based program, (4) placed directly in a residential community-based program, (5) placed directly in a private secure program or institution, or (6) remanded to the custody of the State department of youth

TABLE 29

COSTS PER JUVENILE PER DAY OF 11 ALTERNATIVE PROGRAMS AND OF SECURE DETENTION FACILITIES IN THE SAME JURISDICTIONS (1977 DOLLARS)

JURISDICTION	COSTS	
	Alternative Program	Secure Detention
Home Detention Program:		
Program A	$ 7.41	$44.55
Program B	14.03	36.37
Program C	29.76	43.86
Program D	6.61	23.92
Program E	12.71	33.18
Program average	14.10	36.38
Private Residential Foster Homes:		
New Bedford, Mass.	63.87	N.A.
Springfield, Mass.		
Intensive Detention Program		
Detailed Youth Advocate Program		
Attention Homes:		
Anaconda, Montana	15.00	N.A.
Boulder, Colorado	13.67	22.83
Helene, Montana	22.00	

Source: 77, p. 129

corrections where they will be screened and placed in a State juvenile institution, forestry camp, or in a State operated program. Other dispositional alternatives permit the juvenile to be placed by the State department, under contract, in one of the types of privately operated programs just listed. When final disposition or sentence is available to the juveniles in criminal (adult) court, due to waiver, placement that results in incarceration will be in a jail or adult State institution. As a practical matter, very few juveniles convicted of serious crimes are released or fined. Serious offenders who are placed on probation or directly in community-based programs, nonresidential and residential alike, tend to be first-time serious offenders. Many first-time serious offenders and most repeat serious offenders are remanded to the custody of the State department of youth corrections.

Before proceeding to the estimation of input and output costs, it is important to examine aggregate juvenile correction and detention expenditures. As previously stated, this is the only aggregate data available, specific to juvenile justice system processing. Unfortunately, there is no means of separating detention expenditures from correctional expenditures. But their joint presentation is, nevertheless, instructive. Table 30 (pp. 112-113) presents actual expenditures for 1974 and 1975 by public juvenile detention and correctional facilities, together with average population and per capita operating expenditures for those two years (107, pp. 36-37). Table 31 (pp. 114-115) presents equivalent data for private detention and correctional facilities (107, pp. 38-39). By examining these estimates, one immediately notices that California dominated both total national expenditures and average population categories for public programs for 1974 and 1975 (accounting for 23 percent in each category). California dramatically out-expended New York, a State with nearly the same population in 1975. As previously explained, however, in New

TABLE 30

EXPENDITURES BY PUBLIC JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE

State	All expenditures			Average population			Per capita operating expenditures		
	1974	1975	Percent change	1974	1975	Percent change	1974	1975	Percent change
	---(thousands)---								
United States	508,630	594,206	+17	46,753	48,794	+4	10,354	11,471	+11
Alabama	4,118	5,988	+45	548	513	-6	7,100	9,917	+40
Alaska	1,951	2,985	+53	92	120	+30	21,006	24,656	+17
Arizona	5,613	8,060	+44	499	624	+25	8,737	10,808	+24
Arkansas	3,635	4,031	+11	455	383	-16	5,747	8,435	+47
California	115,025	139,274	+21	11,074	10,987	-1	10,233	12,302	+20
Colorado	446	8,508	+1,809	492	512	+4	875	16,539	+1,790
Connecticut	3,391	4,391	+29	145	181	+25	23,224	24,095	+4
Delaware	2,375	3,122	+31	230	228	-1	9,088	12,870	+42
District of Columbia	7,468	8,580	+15	536	664	+24	13,879	12,921	-7
Florida	19,859	22,596	+14	2,150	2,563	+19	9,029	8,628	-4
Georgia	11,668	11,685	(+Z)	1,446	1,425	-1	7,687	8,040	+5
Hawaii	1,355	1,557	+15	112	132	+18	12,091	11,790	-2
Idaho	1,504	2,461	64	135	183	+36	10,667	9,234	-13
Illinois	23,382	24,151	3	1,353	1,131	-16	16,718	20,384	+22
Indiana	6,691	9,585	+43	918	1,037	+13	6,433	7,561	+18
Iowa	5,474	5,910	+8	395	448	+13	13,239	12,952	-2
Kansas	6,749	6,939	+3	490	573	+17	10,470	10,933	+4
Kentucky	4,218	5,386	+28	483	520	+8	8,635	9,395	+9
Louisiana	7,927	9,649	+22	1,193	1,122	-6	6,434	8,462	+32
Maine	3,712	3,795	+2	220	236	+7	16,030	15,457	-4
Maryland	11,121	14,599	+31	1,182	1,235	+4	8,873	8,986	+1
Massachusetts	2,743	2,334	-15	179	141	-21	15,226	16,311	+7
Michigan	21,283	23,497	+10	1,610	1,624	+1	12,891	14,344	+11
Minnesota	10,204	8,834	-13	730	608	-17	13,626	13,618	(-Z)
Mississippi	2,333	2,523	+8	589	633	+7	3,582	3,900	+9
Missouri	9,252	10,038	+8	1,088	1,226	+13	7,837	7,848	(+Z)
Montana	2,197	2,746	+25	242	246	+2	8,860	11,035	+25
Nebraska	2,180	2,694	+24	194	241	+24	11,077	11,024	(-Z)
Nevada	3,710	5,054	+36	328	399	+22	10,568	11,396	+8
New Hampshire	1,888	2,373	+26	206	192	-7	9,164	11,900	+30

Continued on Next Page

TABLE 30, cont'd

EXPENDITURES BY PUBLIC JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE

State	All expenditures			Average population			Per capita operating expenditures		
	1974	1975	Percent change	1974	1975	Percent change	1974	1975	Percent change
	---(thousands)---								
New Jersey	15,175	16,594	+9	972	990	+2	15,133	15,281	+1
New Mexico	2,813	3,135	+11	329	316	-4	8,252	9,668	+17
New York	30,404	36,367	+20	1,852	2,088	+13	16,219	16,009	-1
North Carolina	10,229	9,736	-5	1,072	1,078	+1	7,563	8,790	+16
North Dakota	1,157	1,121	-3	119	118	-1	9,478	8,330	-12
Ohio	29,908	36,864	+23	3,014	3,390	+12	9,854	10,655	+8
Oklahoma	4,582	5,158	+13	460	473	+3	8,109	8,962	+11
Oregon	7,057	6,805	-4	504	465	-8	13,534	14,119	+4
Pennsylvania	26,478	28,566	+8	1,300	1,444	+11	16,380	16,033	-2
Rhode Island	2,048	2,588	+26	131	128	-2	15,555	20,173	+30
South Carolina	4,271	4,731	+11	618	733	+19	6,499	6,201	-5
South Dakota	921	1,106	+20	108	121	+12	8,046	7,446	-7
Tennessee	9,377	10,767	+15	1,247	1,224	-2	7,063	8,167	+16
Texas	15,471	16,260	+5	1,462	1,516	+4	10,321	10,531	+2
Utah	2,728	2,821	+3	301	286	-5	8,892	9,582	+8
Vermont	1,527	1,494	-2	89	93	+4	16,227	15,403	-5
Virginia	11,513	13,260	+15	1,350	1,513	+12	7,896	8,206	+4
Washington	15,506	17,564	+13	1,144	1,259	+10	13,511	13,756	+2
West Virginia	2,547	3,219	+26	403	417	+3	6,069	6,151	+1
Wisconsin	10,244	11,437	+12	846	897	+6	11,853	12,661	+7
Wyoming	1,200	1,268	+6	118	118	0	9,080	9,420	+4

NOTE: Data generally refer to fiscal year. Detail may not add to total shown because of rounding. Percent change based on unrounded estimates.

Exclude data for expenditures from nine Colorado facilities in 1974.

(Z) Less than 0.5 percent.

*Increase not definable.

Source: 107, pp. 36-37

TABLE 31

EXPENDITURES BY PRIVATE JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE

State	All expenditures			Average population			Per capita operating expenditures		
	1974	1975	Percent change	1974	1975	Percent change	1974	1975	Percent change
	---(thousands)---								
United States	294,036	273,644	-7	31,384	26,735	-15	8,543	9,518	+11
Alabama	259	488	+88	76	60	-21	2,971	6,685	+125
Alaska	905	1,374	+52	109	105	-4	8,200	12,704	+55
Arizona	5,515	6,548	+19	813	901	+11	6,133	6,787	+11
Arkansas	1,682	2,428	+44	370	486	+31	3,642	3,815	+5
California	44,709	40,708	-9	4,584	3,840	-16	9,082	9,889	+9
Colorado	3,844	5,125	+33	620	639	+3	5,938	7,841	+32
Connecticut	5,570	4,197	-25	519	388	-25	9,801	10,544	+8
Delaware	0	0	0	0	0	0	0	0	0
District of Columbia	60	60	0	18	(D)	(D)	3,350	(D)	(D)
Florida	6,301	6,131	-3	871	766	-12	6,338	7,879	+24
Georgia	3,906	1,662	-57	572	255	-55	5,926	6,123	+3
Hawaii	877	801	-9	50	59	+18	16,367	13,349	-18
Idaho	1,262	1,032	-18	107	102	-5	11,134	8,775	-21
Illinois	9,141	9,972	+9	1,006	946	-6	8,180	9,743	+19
Indiana	6,748	5,824	-14	932	716	-23	6,052	7,469	+23
Iowa	2,420	3,023	+25	268	251	-6	8,193	11,691	+43
Kansas	2,405	3,123	+30	346	425	+23	6,508	6,853	+5
Kentucky	1,106	902	-18	256	171	-33	4,186	4,853	+16
Louisiana	2,272	2,751	+21	448	431	-4	3,948	5,685	+44
Maine	2,215	1,808	-18	314	315	(+Z)	5,803	5,194	-10
Maryland	5,677	4,523	-20	651	433	-33	8,079	10,128	+25
Massachusetts	11,959	8,872	-26	1,043	770	-26	10,825	10,785	(-Z)
Michigan	17,078	16,833	-1	1,360	1,271	-7	11,338	12,136	+7
Minnesota	7,687	7,831	+2	741	686	-7	8,120	10,221	+26
Mississippi	1,336	598	-55	183	117	-36	6,340	3,792	-40
Missouri	5,827	4,582	-21	764	543	-29	7,298	7,859	+8
Montana	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nebraska	3,515	4,049	+15	646	573	-11	5,176	6,581	+27
Nevada	246	263	+7	109	60	-45	2,091	2,136	+2
New Hampshire	2,054	2,388	+16	273	301	+10	7,024	7,477	+6

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TABLE 31, cont'd

EXPENDITURES BY PRIVATE JUVENILE DETENTION AND CORRECTIONAL FACILITIES, AVERAGE POPULATION, AND PER CAPITA OPERATING EXPENDITURES, BY STATE

	All expenditures			Average population			Per capita operating expenditures		
	1974	1975	Percent change	1974	1975	Percent change	1974	1975	Percent change
	---(thousands)---								
New Jersey	1,955	2,249	+15	182	177	-3	9,613	11,375	+18
New Mexico	909	1,096	+21	192	167	-13	4,388	5,581	+27
New York	58,927	51,593	-12	3,949	3,357	-15	14,086	14,769	+5
North Carolina	1,403	1,641	+17	224	207	-8	6,203	7,514	+21
North Dakota	1,147	1,065	-7	119	108	-9	8,909	8,541	-4
Ohio	6,860	6,857	(-Z)	801	712	-11	8,069	9,103	+13
Oklahoma	3,073	2,583	-16	631	403	-36	4,182	5,682	+36
Oregon	6,314	4,864	-23	551	466	-15	9,791	10,124	+3
Pennsylvania	18,639	18,401	-1	1,816	1,555	-14	9,555	10,829	+13
Rhode Island	1,777	531	-70	120	56	-53	13,866	9,094	-34
South Carolina	854	932	+9	74	99	34	10,086	7,063	-30
South Dakota	1,247	1,470	18	232	239	+3	4,983	5,984	+20
Tennessee	1,601	679	-58	232	141	-39	6,211	4,679	-25
Texas	10,393	11,794	+13	1,769	1,421	-20	4,886	6,652	+36
Utah	1,866	998	-47	215	125	-42	7,566	7,311	-3
Vermont	* 217	563	+160	47	83	+77	4,476	6,410	+43
Virginia	2,704	1,693	-37	335	159	-53	6,354	10,027	+58
Washington	7,337	6,642	-9	1,018	875	-14	6,554	7,190	+10
West Virginia	340	184	-46	53	30	-43	3,632	5,469	+51
Wisconsin	8,661	9,142	+6	624	576	-8	13,317	15,189	+14
Wyoming	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

NOTE: Data generally refer to calendar year. Detail may not add to total shown due to rounding. Percentages are based on unrounded estimates.

(D) Data not shown to preserve confidentiality guarantees.
(Z) Less than 0.5 percent.
*Increase not definable.

Source: 107, pp. 38-39

York 16- and 17-year-olds are considered adults for purposes of judicial processing; while in California not only are 16- and 17-year-olds treated as juveniles, but many 18- to 23-year-olds processed in adult courts are remanded (by statute) to the custody of California Youth Authority. While nearly 80 percent of California's total correctional and detention expenditures were for publicly operated programs, over half of New York's (60 percent) total expenditures were on privately operated programs. From 1974 to 1975, in each State public expenditures increased substantially (both 20 percent) while private expenditures decreased (both nearly 10 percent). Nationally, total public expenditures increased 17 percent while private expenditures increased only 7 percent. Only four States, Massachusetts, New Hampshire, South Dakota, and New York, expended more for private detention and correctional facilities than public facilities.

Comparing per capita operating expenditures for public and private facilities nationally, average public expenditures were 21 percent higher than private expenditures. Average expenditures for private facilities exceeded average expenditures for public facilities in some of the States, while public per capita expenditures were more than double private per capita expenditures in others. Tables 30 (pp. 112-113) and 31 (pp. 114-115) illustrate that there is enormous variation in input costs among the States both for public and private correctional detention facilities. As with the variation in court processing costs, much of the cost variation here is attributed to regional variations in resource price, particularly wages and salaries. Both per capita expenditures and average salary and wage rates are considerably lower in the southern States as compared to other States, which partially accounts for their lower correctional and detention expenditures. What Tables 30 (pp. 112-113) and 31 (pp. 114-115) illustrate, perhaps more dramatically than anything else, is that correctional processing costs can be extended to processing costs in general, and that these costs depend mostly on what jurisdictions are willing to spend. Southern States have a long history of spending very little on corrections relative to other States, perhaps due to their long period of economically lagging far behind other regions of the country. Those States who have enjoyed substantial increases in per capita incomes in recent years, such as Texas and Georgia, have increased their justice spending accordingly.

As Tables 30 (pp. 112-113) and 31 (pp. 114-115) indicate, Massachusetts is a State which spends the greatest proportion of its total budget on privately operated programs. Massachusetts also affords a unique look at intrastate variation in unit input costs because it is devided into six autonomous regions. Table 32 (p. 118) presents average daily expenditures for different types of correctional and detention processing by regions (50, pp. 68-88). As Table 32 illustrates, there is considerable variation both in unit input costs: (1) for the same program types among the different regions, (2) among unit input costs for different regions, and (3) for different programs in the same region. This variation is primarily attributable to different program specifications rather than regional resource price variation, although there can be great variation among programs in the same locality by utilizing part-time staff and volunteers.

Input and Output Costs of Correctional Processing

Correctional processing costs are affected by four major variables: (1) level of facility security; (2) residential or nonresidential placement; (3) degree of community involvement (or conversely of isolation); and (4) services provided in-program as opposed to out-of-program, ranging from purely custodial care (a service to society) to multiple services to offenders. Until recent years, judges in most jurisdictions

TABLE 32

MASSACHUSETTS DEPARTMENT OF YOUTH SERVICES, AVERAGE DAILY EXPENDITURES ON JUVENILE DETENTION AND CORRECTIONAL PROCESSING, BY REGION AND TYPE (1977 DOLLARS)

PROCESSING TYPE	AVERAGE DAILY COSTS PER JUVENILE, BY REGION						
	Region 1	Region 2	Region 3	Region 4	Region 5	Region 7	Six Region Average***
Group care	$ 38.80	$ 25.97*	$ 24.89	$ 10.71	$ 17.65	$ 28.16	$ 27.55
Contracted care	12.95	13.74	13.11	14.66**	12.43	—	13.37
DYS foster care	7.43	6.21	26.67	—	8.32	4.84	9.68
Residential schools	16.86	—	17.14	—	28.57	25.71	22.00
Non-residential services	5.40	6.14	3.98	7.36	2.64	8.11	5.27
Shelter care	41.48	28.57	36.13	36.98	26.49	33.10	33.79
Secure detention	92.45	25.00	56.15	103.57	47.55	40.07	60.80
Intake and screening	—	69.37/case	—	—	—	—	69.37/case
Secure treatment	73.71	62.50	60.57	57.14	41.43	51.43	57.80
Forestry camp	16.67	35.71	23.81	42.86	19.64	26.53	27.54

Source: 50, pp. 68-88

* Residential schools combined with residential group care
** Contracted foster care and DYS foster care combined
*** Excludes Region VI, for which itemized data were not available

confronting the determination of an appropriate disposition or sentence for juveniles convicted of one or more serious crimes had very limited alternatives. Some examples are: (1) probation, (2) jail, (3) State juvenile institutions, and (4) State adult institutions. Presently, however, judges in many jurisdictions can choose, if they wish, from a continuum of correctional alternatives. This is true particularly in those States providing disbursement of State funds for corrections at the regional or local level (e.g., Massachusetts, Minnesota, California, and Pennsylvania).

This continuum of program alternatives ranges from programs characterized by nonresidence, the absence of security, and a major reliance on community services and programs such as probation and correctional day-care (excluding outright release, suspended sentences, and fines which are seldom employed for convicted serious offenders), to programs characterized by maximum security and complete isolation, such as juvenile and adult institutions.

Cost of Nonresidential Community-Based Supervision Programs

Nonresidential community-based supervision programs can be collapsed into two basic categories: probation and parole, and day-care programs (45, p. 5). Probation and parole are distinguished from day-care programs in that typically only supervisory or custodial and referral to community resource services are provided in the program. Day-care programs, on the other hand, typically provide at least general individual and group counseling services. Furthermore, whereas probation case loads typically range from 30 up to 150 and above, staff-juvenile ratios in day-care programs seldom exceed 10:1. As a result, day-care program costs on the average substantially exceed costs of probation and parole. Table 33 (p. 120) presents estimates (1977 dollars) of input and output costs of probation and parole processing. Table 34 (p. 121) presents

TABLE 33

PROCESSING COSTS OF PROBATION AND PAROLE

(1977 DOLLARS)

STATE	COSTS	APPROACH	SOURCE
Michigan	$58/case/month $350/case	Workload: Caseload = 35 Average length of stay = 180 days	Michigan Juvenile Justice Services
Minnesota — metropolitan	$128/case/month (inclusive of external costs) $711/case (inclusive of external costs) $52/case/month (exclusive of external costs) $286/case (exclusive of external costs)	Workload: Caseload = 30 Average length of stay = 167 days	Gray, et al. "Cost Effectiveness of Community Corrections: An Analytical Prototype"
Minnesota — non-metropolitan	$110/case/month (inclusive of external costs) $610/case (inclusive of external costs) $33/case/month (exclusive of external costs) $184/case (exclusive of external costs)		
Colorado (Denver)	$302/case	Breakdown	Parker "Cost Analysis of Juvenile Justice System
New York	$2,369/case	Breakdown (Average length of stay > 1 year)	Family Court: The System That Fails All

Source: 40, p. 50; 35, p. 390; 78, pp. 9-10; and 72, pp. 87-94.

TABLE 34

COSTS OF COMMUNITY-BASED DAY-CARE (NONRESIDENTIAL) PROGRAMS (1977 DOLLARS)

STATE	DAILY AVERAGE COST PER JUVENILE
FLORIDA[1]	\$13.35 (\$400.50/month)
GEORGIA[1]	9.48 (\$284.40/month)
KENTUCKY[1]	14.58 (\$437.40/month)
MARYLAND[1]	10.21 (\$306.30/month)
MASSACHUSETTS[2]	23.00 (\$690.00/month)
PENNSYLVANIA[1]	20.42 (\$612.60/month)

Source: Computed based on the following documents: (1) 85, p. 7; (2) 2, p. 177

input cost estimates of correctional day-care programs (2, p. 177; 85, p. 7).

Examining first the probation/parole estimates, these field services can be costed-out together since resource costs are identical for each activity. Average costs per case are fairly similar for the first three States in Table 34 (p.121) (excluding the estimates which include external costs). New York, on the other hand, is several times greater. Much of the high costs of probation in New York is attributable to an average length of stay of slightly more than one year, twice the average for the other States. The larger portion of the remaining variation is attributable to the much higher personnel costs relative to the other States.

Both the Michigan and Minnesota estimates were derived using the workload approach described earlier and exposited graphically in Table 33 (p. 120). The Minnesota estimates, however, are differentiated by location (metropolitan versus nonmetropolitan) and inclusion of external costs. External costs, remember, are costs associated with programs outside the juvenile justice system which provide services to juvenile offenders without charge to the correctional program (i.e., without charge altogether or for emergency or special services charged to central State or local correctional authorities). External services include drug and alcohol treatment and detoxification, community mental health care, emergency medical treatment, and educational and vocational training. One set of probation input and output cost estimates includes external costs and the other excludes them. As the disparity between estimates illustrates, external costs exceed direct resource costs. For metropolitan probation, for example, average external costs amount to $425 per case, in contrast to direct costs of $286 per case. Contrasting probation/parole estimates in Table 33 (p. 120) with correctional day-care estimates contained in Table 34 (p. 121), it can be seen that day-care input costs generally exceed average probation/parole costs (excluding New York) by a margin of 4:1. The much higher day-care costs are attributable primarily to the low staff to juvenile ratios and services provided in the program. Variation in input costs among day-care programs is also primarily attributable to these two functions.

First-time serious offenders are fairly often placed on probation or in day-care programs, while repeat serious offenders typically are placed in residential programs (i.e., community-based or isolated institutions). A few special "intensive" probation programs focus on serious offenders, while the United Delinquency Intervention Servics (UDIS) Program in Chicago operates several day-care programs focusing on the serious offender. These programs and their impact shall be considered in the next chapter.

Costs of Correctional Community-Based Residential Programs

Further along the corrections continuum, in terms of severity of disposition, are community-based residential programs. These programs can be collapsed into six categories: halfway houses, group centers, small group homes, large group homes, foster homes, and boarding schools. As these names are often intermixed or confused in describing similar or identical programs, it is important to carefully define each, employing the distinctions used in the 1977 Directory of Half-Way Houses and Group Homes for Troubled Children (85).

> "Halfway Houses: Residential community-based treatment programs for 16-30 participants. Youths attend local schools or are employed in the community. Halfway houses are typically situated with relatively large urban areas. Community involvement and interaction are hallmarks of these programs.
>
> Group Centers: Residential treatment programs for 16-25 youths. These programs are similar to halfway houses

except that any educational/vocational training programs are provided 'in-house.' The facility customarily is situated in a suburban or rural area and the youths are not involved in daily community living experiences.

Small Group Homes: These facilities provide groups of 4-8 youths with a home-like atmosphere, usually under the supervision of staff employed or resident husband and wife teams. In-house programming is frequently provided in addition to significant use of 'outside' resources.

Large Group Homes: Same as the Small Group Homes, except that these programs serve 9-15 youths. Emphasis is placed on 'in-house' efforts to redirect the behavior of program members.

Foster Homes: Typically they provide contractional care in non-agency operated private homes. They customarily operate under the direction of non-employee husband and wife teams who care for the children in their own houses. These programs customarily accommodate less serious or less problem-ridden offenders than do Small Group Homes"

Boarding Schools: Large residential programs focusing on educational services provided in-program.

Table 35 (p. 125) presents average costs of community-based residential programs across 23 States (85, p. 7; 2, pp. 177-178). As can be seen, considerable variation exists; again, mostly attributable to staff/juvenile ratios and the types of service provided in-program. One extremely important determinant of input and output cost is the percent of capacity at which the program consistently operates. One study of Minnesota community-based residential correctional programs discovered that halfway houses were operating, on the average, at less than half of capacity; therefore, running very high average cost (62, p. 5). State operated programs tend to cost

TABLE 35

AVERAGE DAILY COSTS PER CHILD OF COMMUNITY-BASED RESIDENTIAL PROGRAMS FOR SELECTED STATES, 1976

STATE	Halfway Houses[1]	Group Centers[1]	Small Group Homes[1]	Large Group Homes[1]	Boarding Schools[2]
Alabama		20.82	16.00		
California		48.53	9.81	9.77	
Connecticut			17.62	24.17	
Delaware				30.49	
Florida	19.40	23.78	24.30		
Georgia			20.82		
Idaho		32.88	13.15		
Kentucky		4.56	11.51		
Maryland	20.55	25.45			
Massachusetts				18.52	28.00
Minnesota	23.29		15.00		
Missouri			19.61		
New Jersey	24.38	15.29			
New York	21.62	27.29	25.38		
Ohio			11.50	17.00	
Oklahoma			8.22		
Oregon		27.40			
Pennsylvania			19.81	40.82	
Rhode Island		39.89	25.44		
South Carolina				18.50	
Tennessee				13.70	
Texas	25.00				
Virginia				16.44	
All States	$19.52	$ 26.50	$17.69	$23.27	$28.00

Sources: Computed based on the following documents: (1) 85, p. 7; (2) 2, pp. 177-178).

more, on the average, than privately operated programs because personnel costs are higher (95, pp. 54-55). For all States, halfway houses averaged $19.52 per juvenile per day in 1977 dollars; group centers, $26.50; small group homes, $17.69; large group homes, $23.21; and boarding schools, $28.00.

Foster home contract costs vary greatly from location to location. Some States are quite generous to participating families while others are frugal. Connecticut, for example, in 1977 paid $4.65--$6.80 per child per day in boarding costs; Florida, $8.00 per day (for 300 beds, a fairly large number); Idaho, $5.00 per day; Maryland, $6.61 per day; Minnesota, $6.50 per day plus $50.00 per month boarding subsidy; Missouri, $5.00 per day; Ohio, $6.50 per day; Pennsylvania, $8.25 per day; South Carolina, $2.50 per day; and Virginia, $12.50 per day (85, pp. 15, 20, 23, 40, 44, 47, and 51).

Table 36 (p. 127) presents input and output costs for the different types of community-based correctional programs, nonresidential and residential. As the estimates in Table 36 clearly illustrate, both input and output costs for residential programs are substantially greater than the cost of nonresidential processing. Average lengths of stay are remarkably consistent, ranging from 180 to 255 days, while output costs range from $335 for probation to $6,758 for group centers. Interestingly, group centers are the largest of the community-based programs. In general, the cost analysis of correctional processing has largely been arrived at by looking at isolated, secure correctional processing. These types of facilities are the larger correctional residential programs which are usually more expensive than smaller residential units. In economic terminology, this indicates the presence of this economies of scale.

In addition to higher input and output costs, residential care imposes greater secondary indirect cost upon society and upon the juvenile offender. Greater costs are imposed on

TABLE 36

INPUT AND OUTPUT COSTS OF COMMUNITY-BASED PROGRAMS (1977 DOLLARS)

PROGRAM TYPE	DAILY INPUT COST PER JUVENILE	AVERAGE LENGTH OF STAY (DAYS)	OUTPUT COST
Halfway Houses	$19.52	180	$3,514
Group Centers	26.50	255	6,758
Small Group Homes	17.69	210	3,715
Large Group Homes	23.27	180	4,189
Day-Care	15.17	180	2,731
Foster Homes	7.35	240	1,764
Probation/Parole (Exclusive of External Costs)	1.86	180	335
Probation/Parole (Inclusive of External Costs)	3.85	180	693

Source: Computed based on reference no. 85.

society in the form of boarding and in-house services to offenders. These costs are weighed against any diminution in direct crime costs as a result of the greater custodial care and surveillance of juvenile offenders provided in a residential setting as contrasted to a nonresidential one. If potentially serious offenders are among the juveniles processed, the diminution of direct crime cost may easily outweigh the increased cost of residential care. That, of course, is the principal rationale behind residential processing and proceeding along the corrections continuum.

The external cost situation is exactly the opposite. As one proceeds along the corrections continuum from less secure to more secure environments, fewer referrals to community resources are made and more services are provided in-program. Accordingly, therefore, external costs are the greatest for nonresidential community care processing and the least for institutions.

Other indirect costs of crime imposed on society by residential programs are costs of providing public support services to dependents of offenders (i.e., costs in the form of diminished tax payments as the result of the offender leaving his job). These costs are included for the sake of comprehensiveness. Costs of these types generated by residential community-based processing of juvenile offenders tend to be relatively small, since relatively few juveniles have dependents or jobs.

Costs of Forestry Camps and Outward Bound Programs

Two isolated types of medium security or non-secure residential correctional processing programs are State operated forestry camps and privately operated outward bound programs. Both represent innovative types of correctional programming and will be examined in the next chapter. For purpose of comparison here, both programs cost on the average $40 per juvenile per day (2, p. 177).

Costs of Secure Correctional Processing

Correctional processing programs at the far end of the correctional continuum are characterized by isolated, secure facilities. Secure facilities can be collapsed into two categories: (1) small secure programs, and (2) large institutions. Both types of programs have higher staff/client ratios and proportionately higher personnel costs. Both programs are also characterized by much higher capital costs. Most residential community-based programs operate out of existing facilities which may be renovated for their particular purpose, while secure programs seldom convert existing facilities. Nearly all secure programs, therefore, entail construction of expensive facilities. Per bed construction costs for secure institutions are now in the $40,000 to $60,000 range; and an $800,000 planning study has been funded to study the need for a new 400 bed high security facility in Minnesota. The estimated capital cost of that facility is $20.8 million or $52,000 per bed (60, pp. 1-17). Construction of smaller secure facilities in the 15 to 40 bed range costs considerably less. In addition, smaller secure programs can convert existing, large, isolated facilities to their own use. Small secure programs in Massachusetts, for example, operate out of the wings of several of the former juvenile institutions. Other candidates for conversion into secure facilities are outlying factories and warehouses.

Input costs, including both amortized (nonrecurring) capital and annual (recurring) operating expenditures for juvenile institutions and other small secure programs in several States, are presented in Table 37 (p. 130). As can be immediately seen, input costs for secure processing are very high, especially relative to community-based programs. A large

TABLE 37

AVERAGE SECURE PROGRAM PROCESSING COSTS (1977 DOLLARS)

STATE	AVERAGE DAILY COST	SOURCE
Institutional Processing:		
Maine – Male	$ 62.75	Maine State Bar Association[1]
Maine – Female	117.94	
Minnesota	74.91	Gray, et al.[2]
Colorado – Male	33.69	Parker[3]
Colorado – Female	59.51	
Massachusetts		Massachusetts Department of Youth Services[4]
Region 1	73.71	
Region 2	62.50	
Region 3	10.57	
Region 4	57.14	
Region 5	41.43	
Region 6	51.43	
Regional Average	49.46	
Pennsylvania	101.00	
Total	499.62	

Source: Computed based on the following documents:

(1) 48, pp. 130-132; (2) 35, p. 39; (3) 78; (4) 50, pp. 57-86

part of this increased cost is attributable to the much higher capital cost of secure programs. But, a factor which is equally important is the high staff/juvenile ratios of secure programs. It is the staff/juvenile ratios, along with average salary and fringe benefit costs, which ultimately determine whether institutional processing is more expensive than small, secure program processing. A recent Massachusetts study entitled The Issue of Security in the Community-Based System of Juvenile Corrections (51, pp. 81-82) recommended that staff/juvenile ratios be increased to the point that annual operating costs of small secure correctional programs range from $26,000-$28,000, or $71-$77 per day per juvenile range. Processing costs for female juveniles, also, are typically greater than for males because of the much smaller average population of female juvenile offenders.

Institutional processing of juveniles is generally more expensive than institutionalization of adult offenders on a primary cost level, but considerably less expensive on a secondary cost level. On a primary cost level, institutionalization of juveniles is more expensive because more services are typically provided; hence, staff/offender ratios and personnel costs are higher. On a secondary cost level, adult institutions cost more, on the average, because they impose greater costs on society in the form of support costs for dependents of institutionalized offenders, as well as diminished Federal, State, and local income taxes.

Table 38 (p. 132) contrasts the average daily primary costs of two juvenile institutions in Maine with Maine adult institutions (48, p. 131). As Table 38 illustrates, the male juvenile institution costs approximately three times more on the average than male adult institutions, while the female juvenile institution costs over 50 percent more than the female adult institution, and over five times that of male adult institutions.

TABLE 38

PER CAPITA COSTS FOR MAINE STATE CORRECTIONAL INSTITUTIONS (1977 DOLLARS)

INSTITUTIONS	TOTAL ALLOCATED PRIMARY EXPENDITURES	AVERAGE DAILY POPULATION	AVERAGE DAILY PRIMARY COSTS
Maine State Prison			
Thomaston	$2,594,838	309	$ 23.01
Minimum Security Unit	411,129	58	19.42
Bangor Pre-release Unit	157,163	20	21.53
Overall Per Capita	3,163,129	387	22.39
Men's Correctional Center	1,741,097	107.2	44.50
Women's Correctional Center	487,796	17.7	75.50
Boys Training Center			
(committed - in residence)	2,977,293	130	62.75
(detained)	245,335	15	44.81
(absent)	93,037	67	3.81
Stevens School (Girls Training Center)			
(committed - in residence)	874,105	20.3	117.97
(detained)	69,096	3	63.10

Table 39 (p. 134) identifies the secondary costs associated with different types of Maine institutions (48, p. 178). The table is useful in depicting both the variety and the amount of secondary expenditures. As Table 39 illustrates, secondary expenditures are quite high over all, and are highest for male adult offenders.

Table 40 (p. 135) presents primary and secondary costs in the aggregate, and also shows the combined average daily cost per offender. As can be seen, average overall costs are increased considerably, particularly for male adult offenders, and female juvenile and adult offenders. Also, male juvenile offender costs are less than male adult offenders, primarily because they are considerably less likely to have dependents or be employed, and thus do not generate as high secondary costs.

Returning to the estimates contained in Table 37 (p. 130), one can incorporate average lengths of stay to develop output costs. These can then be combined with the cost estimates contained in Table 36 (p. 127) to complete the correctional no-processing cost continuum. Table 41 (p. 136) presents this input and output cost continuum. As Table 41 shows, input costs and output costs increase dramatically as one proceeds along the corrections continuum. So, too, does the percentage of total population per program type who constitute serious juvenile offenders. Hence, serious offenders, on the average, in relation to non-serious offenders, impose greater processing costs on society, just as they do direct costs of crime.

THREE EXAMPLES OF AGGREGATE COSTS OF PROCESSING SERIOUS JUVENILE OFFENDERS

The extent of processing costs generated by a single repeat serious juvenile offender can be staggering. In order to give these and the previous processing cost estimates life, it is important to consider three processing case histories associated with individual juvenile offenders.

TABLE 39

SECONDARY EXPENDITURES FOR THE MAINE STATE CORRECTIONAL SYSTEM (1975 DOLLARS)

Committed Population *	Indirect Costs of Central Services	Lost Taxes on Wages Not Earned	Lost Contributions to Social Security	Lost Property Taxes	Welfare Costs	Vocational Rehabilitation Costs	Parole System Costs	Correctional Subsidy Costs	Manpower Training Costs	Total Secondary Costs Before Addition of Opportunity Costs	Opportunity Costs of Dollars Spent on Corrections	Total Secondary Costs
Adult Male at MSP	$ 523,366	$64,890	$173,876	$ 9,341	$186,741	$ 79,052	$117,155	$42,045	$181,637	$1,378,103	$259,383	$1,637,486
Male Youthful Offender at MCC	268,621	27,476	49,189	25,039		43,965	85,229	9,463		508,982	132,297	641,279
Female Adults & Youthful Offenders at WCC	89,648	1,349	7,435	13,120		3,890	4,575	9,401		129,418	39,847	169,265
Male Juvenile at BTC	364,200			58,101		28,706	3,159	16,118		470,284	191,101	661,385
Female Juvenile at SS	118,011			1,676		5,120		7,755		132,562	57,463	190,025
TOTALS	$1,363,846	$93,715	$230,500	$107,277	$186,741	$160,733	$210,118	$84,782	$181,637	$2,619,349	$680,091	$3,299,440

The figures and dashes presented in this table have been developed, qualified, and/or estimated in the preceding discussion of secondary costs. The appropriate portion of the preceding text should be consulted in connection with any informed use of these figures.

Source: 48, p. 178

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*Abbreviations are as follows: MSP=Maine State Prison; MCC=Men's Correctional Center; WCC=Women's Correctional Center; BTC=Boy's Training Center; and SS=Steven's School.

TABLE 40

TOTAL EXPENDITURES
(PRIMARY AND SECONDARY COSTS)
MAINE STATE CORRECTIONAL INSTITUTIONS
(1977 DOLLARS)

COMMITTED POPULATION IN RESIDENCE	AVERAGE DAILY POPULATION	TOTAL ALLOCATED PRIMARY EXPENDITURES	TOTAL ALLOCATED SECONDARY EXPENDITURES	AVERAGE DAILY PRIMARY COST	AVERAGE DAILY PRIMARY AND SECONDARY COSTS
Adult Male Offender	387	$3,163,129	$1,637,487	$ 22.39	$ 33.99
Adult Male Youthful Offender	107.2	1,741,097	641,280	44.50	60.89
Adult Woman Offender	17.7	487,796	169,264	75.50	101.70
Male Juvenile	130	2,977,293	661,385	62.75	76.68
Female Juvenile	20.3	874,105	190,024	117.97	143.62
Total Expenditures for Committed Population	—	$9,243,420	$3,299,440	—	—

Source: Based on Table 38, p. 197

TABLE 41

INPUT AND OUTPUT COSTS OF CORRECTIONAL PROCESSING (1977 DOLLARS)

Processing Type	Input Costs/Juvenile/Day	Average Length of Stay (Days)	Output Costs
Probation/Parole (Exclusive of External Costs)	$ 1.86	180	$ 335
Probation/Parole (Inclusive of External Costs)	3.85	180	693
Day-Care	15.17	180	2,731
Foster Care	7.35	240	1,764
Halfway-House	19.52	180	3,514
Small Group Homes	17.69	210	3,715
Large Group Homes	23.27	180	4,189
Group Centers	26.50	255	6,758
Small Secure Programs	62.50	first stay 300	18,750
		repeat 540	33,750
Juvenile Institutions (Excluding Secondary Costs)	68.50	first stay 300	20,550
		repeat 540	36,990
Juvenile Institutions (Including Secondary Costs)	83.57	first stay 300	25,071
		repeat 510	45,128

Source: Computed based on Table 36 (p. 127) and Table 37 (p. 130).

Case One: Michael was arrested for aggravated assault, is processed through court intake and released to his home. He attends his juvenile court hearing and receives one year probation.

Case Two: Morris, age 16, is arrested for robbery, is referred to juvenile court intake, is detained in a group shelter home for ten days, goes to court and is placed on probation.

After three months he is arrested again, for armed robbery, and is detained three weeks in a secure program. He then returns to court and is committed to a State juvenile institution where he stays for eight months. He is then released and receives aftercare supervision for seven months.

Case Three: Marian was arrested at age 16 for aggravated assault, referred to court intake, and placed in a home detention program for three weeks. She went to court and was placed in a day-care program where she stayed four months before running away. Two months later, she was arrested for shoplifting and this time released in the custody of her mother pending a juvenile court hearing. At the hearing she is placed in a group home for eight months. After three months she again runs away and this time is arrested for armed robbery and homicide and placed in secure detention for three months awaiting trial in Superior Court. She is convicted and sentenced to 12 years in a women's State institution where she currently resides, having served seven years.

Processing costs generated in each of these three case histories are presented in Table 42 (p. 138). As Table 42 illustrates, the processing cost in the case of recidivist and chronic serious juvenile offenders can be staggering, particularly for those juveniles bound over to adult court, where the likelihood of conviction is substantially greater, and the severity of sentence far greater than in juvenile courts.*

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*For an extensive study of the effects of waiver to adult courts in terms of probability of conviction and severity of sanction, see The Borderlands of Juvenile Justice: The Waiver Process in Philadelphia (26).

TABLE 42

AGGREGATE PROCESSING COSTS ASSOCIATED WITH THREE ILLUSTRATIVE CASES

Case 1

Arrest		$ 106
Intake		118
Juvenile court processing		286
One year probation	$1.86/day x 365 days	679
Total		$1189

Case 2

Arrest		$ 133
Intake		118
Ten days home detention	$14/day x 10 days	140
Juvenile court processing		286
Three months probation	$1.86/day x 90 days	167
Arrest		133
Juvenile court processing		286
Eight months in juvenile institution	$68.50/day x 240 days	16,440
Seven months aftercare	$1.86/day x 210 days	391
Total		$18,094

Case 3

Arrest		$ 106
Intake		186
Three weeks in attention home (detention)	$17/day x 21 days	357
Juvenile court processing		286
4 months day-care	$15.17/day x 120 days	1,820
Arrest		78
Juvenile court processing		286
Three months group home	$23.27/day x 90 days	2,094
Arrest		226
Three months secure detention (jail)	$24/day x 90 days	2,160
Adult court processing		1,997
7 years women's state institution	$75.50/day x 2,555 days	192,902
Total		$202,498

Source: Computed based on previous tables

THE USE OF VOLUNTEERS AND PART-TIME STAFF IN JUVENILE JUSTICE SYSTEM PROCESSING

In every juvenile justice system function area, including corrections, over half the total costs of processing are personnel costs. For police, court intake, and community-based corrections processing, 75 percent or more of processing costs are personnel costs. Accordingly, there is great room in juvenile justice system processing for cost reduction by means of greater use of part-time staff and volunteers. The impact of volunteers on program outcome effectiveness or benefits to society arising from processing, particularly in the corrections function area, has been studied at length. Only very infrequently, however, does one encounter a study of existing impact or potential impact of greater use of volunteers and part-time staff on processing costs. The few studies in the area of police processing, court processing, probation, daycare, and residential correctional processing all conclude that there is extensive opportunity for significant cost reduction. The greatest irony is that volunteer resources, which represent the least cost, are generally the most effective. Yet, because they are also the least tractable (and therefore manageable), they are not employed anywhere near to the extent that they could be. (See, for example, 19, 47, 93, 95, 114).

EXTERNAL COSTS

External costs are generated by the referral of juveniles to community resources where service is either provided free of charge or is charged to some government body other than the program under consideration. Examples of this include referral for drug (alcohol) detoxification and treatment services, special and emergency medical care, mental health care, and educational and vocational training. Other governmental agencies operate treatment programs beside the juvenile justice system, including the National Institute of Mental Health, National Institute of Drug Abuse, Office of Economic Opportunity, and Vocational Rehabilitation Agency.

Cost estimates of several services which are sometimes available to juveniles in community-based correctional programs are presented in Tables 43 (p. 141), 44 (p. 142), and 45 (p. 143). As can be seen, both input and output external costs can be quite high (94, pp. 86-88).

SUMMARY

The focus of this chapter has been on indirect costs in the form of juvenile justice system processing costs, ultimately borne by the community at the household level in the form of taxes. Two types of cost estimation procedures were defined: the "breakdown" and "workload" approaches. Similarly, juvenile justice system processing costs were discussed at the aggregate, national level, as well as on the basis of average or unit analysis (individual level). Two average cost overviews were examined. The first categorized costs as primary, secondary, or additional (tertiary), while the second subdivided average costs into input, output, and outcome costs. Employing primarily the latter subdivisions (i.e., input, output, outcome), average costs of police, intake and court, detention, and correctional processing were progressively explored. Correctional processing was subdivided into nonresidential community-based programs, residential community-based programs, outward bound programs, and isolated secure programs, with costs of each being analyzed in turn.

Output costs were compared by examining three case examples of juveniles pentrating, and repenetrating, the juvenile justice system to varying degrees. External costs were then considered, and cost estimates assembled. The chapter concluded by considering the extent to which use of volunteers currently does and potentially could diminish processing costs.

TABLE 43

COST ESTIMATES OF PROVIDING DRUG TREATMENT SERVICES (1977 DOLLARS)

MODALITY	COST PER CLIENT YEAR	COST PER CLIENT
Drug-Free Residential Community	$7,685	$2,228
Outpatient Abstinence Clinic	1,570	727
Day-Care,Drug-Free Project	3,379	not available
Outpatient Methadone Treatment Center	1,597-2,581	633
Residential Methadone Maintenance Project	5,310	1,229

Source: 94, p. 86

NOTE: Explanation of footnotes and components for the cost estimates shown in this table appear in Appendix C, pp. 235-240.

TABLE 44

COST ESTIMATES OF PROVIDING TREATMENT SERVICES TO ALCOHOLICS
(1977 DOLLARS)

TREATMENT MODALITY	TREATMENT SITE	Cost Per Client Day	Average Length of Stay	Cost Per Client Stay
Inpatient Emergency Care	General Hospital	$210.81	4 days	843.24
	Specialized Alcoholism Hospital	70.90	4 days	283.60
	Other Specialized Hospital	119.68	4.9 days	586.43
	Hospital Affiliated Medical Emergency Care Center	96.53	3.8 days	366.81
	Hospital Affiliated Non-Medical Emergency Care Center	20.14	3.1 days	62.43
Inpatient Care	General Hospital	107.38	10.4 days	1116.75
	Specialized Alcoholism Hospital	41.51	8.0 days	332.08
	Other Specialized Hospital	115.09	9.4 days	1081.85
	Hospital Affiliated Inpatient Care Under Medical Superivision	143.77	6.2 days	891.37
Intermediate Care	Partial Hospitalization	91.12	16.8 days	1530.82
	Recovery Home	15.55	56 days	870.80
	Other 24-Hr. Non-Medical Residential Center	25.90	29.8 days	771.82
	Specialized Alcoholism Hospital	32.86	30.3 days	995.66
Outpatient Care	Hospital-Based Outpatient Clinic	24.66	13 visits	320.58
	Family or Neighborhood Alcoholism Center	19.46	11.7 visits	227.68
	Community Mental Health Center	39.59	8.3 visits	328.60

Source: 94, p. 87

TABLE 45

COST OF ESTIMATES OF PROVIDING MENTAL HEALTH SERVICES (1977 DOLLARS)

MODALITY	COST PER CLIENT/DAY
Free Standing Outpatient Psychiatric Clinics[a]	$44.98[e]
Inpatient Services At Public Hospitals[b]	37.85[f]
Inpatient Services At Private Hospitals[c]	
Non-Profit	89.46[f]
For Profit	77.42[f]
Residential Treatment Centers[d]	46.47

[a] Estimate is for all ages for all diagnostic conditions. 74 percent of the cost is for salaries; 21 percent for other operating expenditures; 5 percent for capital expenditures.

[b] Estimate is U.S. average. 79 percent of cost is for salaries.

[c] Estimate is U.S. average. 63 percent of cost in non-profit hospitals is for salaries; 54 percent in profit hospitals is for salaries.

[d] Estimate is for Washington, D.C.

[e] Estimate is U.S. average, all facilities, all patients under 18.

[f] The average costs of hospitalization for mental illness are lower than hospitalization for alcoholism, drug addiction, or for other physical ailments because mental hospitals are often only custodial, are understaffed with low-paid personnel and because the treatment of mental illness, unlike physical illness, does not require costly equipment. Interview with M.J. Witkin, Division of Biometry, National Institute of Mental Health, October 9, 1974.

Source: Computed based on 94, p. 88.

NOTE: All costs have been converted to 1977 dollars using the GNP implicit price deflator for purchases of all goods and services by State and local governments.

CHAPTER V

PROGRAM IMPACT: EVALUATION OF INPUT AND OUTPUT EFFECTIVENESS, AND OUTCOME MEASUREMENT

This chapter deals with program impact. Two forms of program impact measurement are analyzed: process evaluation in which the contributions of inputs to desired program outputs are evaluated, and outcome evaluation in which program input and output contributions to desired program outcomes are evaluated.

Each of the major functions which together comprise juvenile justice system processing are examined in terms of their effectiveness in achieving a decrease of serious juvenile crime and serious juvenile crime costs.

PROGRAM IMPACT: AN EXPLORATION

Previous chapters have been concerned exclusively with the costs of serious juvenile crime. It is now time to turn to the other side of juvenile justice system processing: program impact, or the outputs and ultimately outcomes generated by programs within the different functions which together comprise juvenile justice system processing. Outputs are intermediary products or achievements toward goals determined internally which are specific to a particular program. Program outputs typically consist of altered capabilities or behavior on the part of the juvenile offender. Some examples are improved intellectual capabilities, drug free behavior, compliance with program standards, and procurement of employment. These are all typical correctional program outputs. Program outcomes, on the other hand, consist of changes in crime-producing behavior on the part of potential and actual juvenile offenders. Program outcomes can be defined in terms of the impact on crime costs imposed by serious juvenile offenders.

EVALUATION: MEASUREMENT OF OUTPUTS AND OUTCOMES

Program outputs are typically measured by tests or questionnaires. Program outcomes, on the other hand, are usually measured by the repenetration of the offender into the juvenile justice system through: revocation of probation or parole, arrest, conviction, or (re)incarceration by program participants. Evaluation consists of the determination of the level of achievement of desired outputs or outcomes; or alternatively stated, in determination of the effectiveness of program inputs in achieving desired outputs. Program effectiveness would be achieved to the extent that there is an alteration in crime-producing behavior resulting in a reduction of crime costs imposed by program participants both during and after the duration of program processing.

The first type of evaluation, which amounts to the extent that inputs contribute to desired program outputs, can be called process evaluation. The second type of evaluation of the effectiveness of program inputs and outputs in achieving a reduction in crime production by program participants is called outcome evaluation.

Process evaluation is typically program specific, since desired outputs are determined internally, by program designers or administrators. Process evaluations are therefore primarily administrative tools, and measure the degree to which designated program goals, objectives, and standards are being met. Process evaluation also is a measurement of the degree to which input effort transforms desired outputs, hence a measure of program process efficiency (not to be confused with economic efficiency). It provides feedback which can lead to changes in program inputs, program structure, or the nature of processing (e.g., rate of speed in performance, order of tasks performed). Process evaluation also determines the extent to which measured output approximates desired output. Process evaluation is therefore typically concerned with short run impact. Outcome evaluation should not be program specific, although it often is, because program outputs are confused with outcomes, and outcomes are consequently ignored. Every juvenile justice system processing program should be primarily concerned with effecting a reduction in crime and therefore crime costs. Program outputs should be directly related to outcomes, or else resources employed in that program are poorly allocated. Processing efficiency, therefore, should always be subordinate to program effectiveness in yielding desired outcomes, and in effecting reductions in crime costs.

THE PURPOSES OF EVALUATION

Evaluation has several purposes. One purpose of evaluations is that they can serve as planning instruments. Evaluation provides feedback regarding the effectiveness of program design and the extent to which output and outcome goals are met. Program evaluation enables continuing adjustments or "fine-tuning" to be made in program design and program structure. Processing evaluation examined against the backdrop of outcome evaluations, for multiple programs, provides the basis for adjustments or fine-tuning in replicable program designs (e.g., for demonstration projects or pilot programs) (27).

Evaluation, that is process evaluation, is also an administrative tool, which enables the program administrator to determine whether personnel comply with program standards. Such evaluations can provide an informational base to serve as justification for raising or lowering salary levels, program promoting or demoting, or firing program staff. Evaluation also enables the administrators to justify their own individual program designs.

Outcome evaluation, on the other hand, is a budgeting tool which enables administrators who are responsible for the disbursement of funds and resources to allocate those resources on the basis of potential and demonstrated individual program outcome effectiveness. An even better program budgeting tool is outcome-cost measurement, or cost-benefit and cost-effectiveness analysis. Outcome cost measurement simply extends outcome evaluation in that it looks at program outcomes for program "success" in diminishing crime producing behavior, from the added perspective of costs affecting the level of outcome. Although outcome or outcome-cost evaluation should constitute the basis for resource allocation, all too often these resources are allocated on the basis of output evaluation instead.

One study suggests that evaluation serves several additional purposes as well. The most prominent of these purposes is that it stimulates program staff to critically examine their assumptions and behavior. After this critical self-examination occurs, it often leads to suggestions for changes in the definition of the evaluator's role and in the recruitment of future evaluators. This process serves largely as a societal ritual whose purpose or function is to reassure the citizenry and "to perpetuate an image of government rationality" (27, p. 9).

Program design, program operation, and processing in outcome evaluation can and should be related in the following manner. Programs should be designed, based on previous outcome evaluations of similar program types, so that program outputs produce desired outcomes. Programs should be structured so that inputs produce desired outputs, and yet, programs should be flexible enough to enable adjustments to be made in response to the results of process evaluation.

WHAT EVALUATION ENTAILS

Both process evaluation and outcome evaluation consist of two components. Process evaluation involves a determination of output levels, and the extent to which inputs contribute to the production of these outputs. Outcome evaluation involves a determination of outcome levels and of outcome inputs and outputs. To the extent possible, these analyses are based both on combined and individual contributions, and are examined relative to program goals.

For ease of analysis,, it is possible to separate these functions as follows:

- process evaluation:
  (1) outputs,
  (2) contribution of inputs, combined and individually, to outputs;
- outcome evaluation:
  (3) outcomes,
  (4) contribution of inputs and outputs, combined and individually to outcomes.

The easiest evaluation component is that of outputs, as specified under process evaluation, since outputs are defined within the program. Additionally, outputs are produced within and during the duration of the program. Outcome determination, on the other hand, is more difficult in that it requires a determination of criminal behavior both during the program and, if the outcome evaluation is comprehensive, for a specified period of time after termination of program participation. Ideally, it would also involve observation of the population evaluated over the post-release time period in order to determine the extent to which crimes are committed and their related costs are imposed. Typically, however, outcomes are measured by rearrests due to technical revocations of probation or parole status, or reconvictions. As mentioned earlier, arrests contribute highly imperfect data since many crimes go unreported, or if reported, go unsolved. Reconvictions similarly account for only a fraction of crimes, and therefore are not a good measure of outcome. Technical probation or parole violations are typically meaningless as outcome measures; they are too often measures of processing intolerance. Nevertheless, in the absence of total surveillance, convictions and arrests constitute the best recidivism measures available. Most outcome evaluations stop at this point. One step beyond this level would be to incorporate a severity index to measure crime seriousness. Finally, thorough outcome evaluation would require that crimes be translated into the costs imposed, thus creating a common basis for comparison (dollars).

The real difficulties, however, lie in evaluating the extent to which inputs contribute to outputs for process evaluation, and the extent to which inputs contribute to outcomes for outcome evaluation. Further, it is important to determine the extent to which outputs and outcomes are attributable to program intervention. More specifically, the net contribution of inputs and outputs to program intervention must be determined. Exploration of these problems leads to a discussion of the evaluation design area.

EVALUATION DESIGN

A primary resource in evaluation literature is: Douglas Lipton, Robert Martinson, and Judith Wilks, The Effectiveness of Correctional Treatment: A Survey of Treatment Evaluation Studies (10). Lipton, Martinson, and Wilks conducted a survey of all evaluations of criminal and juvenile justice system correctional programs conducted between 1945 and 1968. From this evaluation universe, they selected a sample of programs which met their criteria (constituting only a fraction of all evaluation studies). The selection criteria were based on program design. Lipton (10, p. 15) defined the following acceptable program designs in their order of desirability or acceptability:

(1) Classical design which "calls for equivalent experimental (treated) and control (untreated) groups. In both groups a 'before' measure is made of the dependent variable (the desired result, that is, output or outcome) to determine a base line against which change can be measured. Then the experimental group is exposed to the treatment which needs to be evaluated. After treatment, an after measurement is made in both the experimental and control groups to determine what changes have taken place." The classical design is the ideal program design, but is often difficult to implement. Other designs are, therefore, compromises in the classical design approach.

(2) An after-only design with the control group. In this compromise, no "before" measures were developed. Therefore, different "after" measures for the experimental and control groups constitute the basis for evaluation.

(3) A before-after design, without control group. Here, no control group was included in the evaluation, therefore, the difference between preprogram and post-program behavior on the part of the program participants constitutes the substance for evaluation.

(4) After-only design. Here, an experimental group, made up of program participants, is exposed to treatment and then measurement is taken to determine if, and to what extent, the desired results (improved outputs or outcomes) have been achieved.

The "compromise" evaluation designs, designs (2), (3), and (4) just mentioned, are flawed, from a purely research point of view. Only the classical design allows for an accurate determination of incentive output or outcome, and the extent to which outcome can be attributed to program intervention. Even within a classical design, however, it is difficult to determine the contribution of individual inputs to outputs. Similarly, it is also difficult to determine the contribution of inputs and outputs to outcomes. The same measurement problems which plague determination of the direct cost of crime are also found in program evaluation, particularly outcome evaluation. It is difficult to measure enthusiasm, commitment, or dedication of staff and volunteers. In fact, typically, evaluators do not try, and these variables are excluded from the evaluation. Separating the outcome effects of professional psychiatric counseling in comparison to group counseling, one-to-one, staff, and volunteer-to-juvenile offender relationships are also very difficult. Even within the "best" framework of a classical design, evaluation has not, as yet, overcome these hurdles.

However, programs incorporating a classical design are not very common. Besides the planning foresight and the administrative difficulties involved in implementation, there may be an ethical objection as well. Project New Pride in Denver, one of the programs examined later in this chapter, illustrates this objection. In its originally conceived design, Project New Pride incorporated a classical design. Juveniles with fairly extensive offense records, including juveniles adjudicated delinquent for serious offenses, who came before the juvenile court on a subsequent charge, were to be randomly placed in Project New Pride or incarcerated in juvenile institutions. Public release of the planned program design, however, stirred such a public outcry that the classical evaluation design had to be rejected.

EVALUATION SHORTCOMINGS

The Project New Pride example serves as a reminder that real-world evaluation is considerably different from idealized evaluation design and intent. There are two principal real-world conditions which have contributed mightily to a prevalence of program-serving rather than society-serving evaluations. The first is that government funding for a great many programs depends upon demonstrated effectiveness, as determined by an evaluation. The second condition, related to the first, is that people who supply information to the evaluation often have "a personal...investment in the outcome of the assessment" (21, p. 344). The most common evaluation shortcoming is the substitute of output measurement (process evaluation) for outcome measurement (outcome evaluation).

Programs are often justified in terms of the outputs they produce rather than the outcomes that are effected. Juvenile justice system processing from police to corrections abounds with such examples. Some police departments, for example, justify Federal or State government funded projects on the basis of high clearance arrest rates (36, p. 3). Upon close examination, actual arrests based on evidence which is substantial enough to result in convictions remains unchanged, while other "technical" clearances and arrests increase dramatically. Residential and nonresidential correctional programs provide intensive services in-program rather than referring "clients" to existing community-based resources. Then, they justify their existence on the basis of improved test performances, procurement of a job at the minimum wage, or graduation from the program hierarchical structure. Similarly, special government funded institutional programs justify their continued existence on the basis of inmates' conformation to institutional norms and standards.

What all this means is that there must be a decision-making body to evaluate the evaluations. Those decision-makers would determine which programs generate genuine reductions in crime production, and then fund accordingly. If this is not done, then all of these evaluations are for naught. When it is considered that most programs include a budget component for evaluation, ranging to 10 percent of budgeted expenditures, it is evident that evaluation of justice system processing costs involves many millions of dollars annually, and that those resources need more coordination.

OUTCOME EFFECTIVENESS OF JUVENILE JUSTICE SYSTEM PROCESSING

This chapter, though critical of many research evaluation techniques, is intended to elucidate all possible and actual limitations of program evaluation design and implementation. It is now important to examine the juvenile justice system as a whole, and each of the functioning areas within, to discover the extent to which programs are effective in bringing about a reduction in crime production.

General Effectiveness of Justice System Processing as a Whole: Incapacitation and Deterrence Considered

One of the components of the economic model developed in Chapter II was an incapacitation and deterrence function (Figure 4, p. 44). Police output in the form of clearances was assumed to be negatively correlated with the number and type of crimes committed. It is this assumption, actually a dual assumption, which will now be examined: (1) a negative correlation between police processing activity and actual crimes committed, which constitutes incapacitation and deterrence; and (2) offender rationality, upon which any deterrent effect rests (32, pp. 425 and 431). Incapacitation is conceptually the simpler of the two. Ideally, offenders are isolated so that they are unable to commit crimes against the population at large, and so that crime levels will be reduced. Those offenders who commit major crimes or repeated minor crimes, if isolated in a secure program setting, cannot continue their crime production in the general community. Proponents of the incapacitation theory maintain that isolation will achieve these results, and that a certain subgroup of the population (i.e., repeat offenders) commit a majority of the crimes. This position assumes that if a substantial number of the individuals in this class or subculture are isolated, crime-at-large will necessarily diminish. Also, that if convicted serious offenders are all isolated, serious crime will diminish considerably (32, pp. 431-432).

Opponents of the incapacitation theory state that these results will not be achieved, and that there is not an identifiable core of individuals that commit crime. Rather, they believe that crime is a socioeconomic phenomenon, and that the critical variable is not that a small segment of the population is responsible, but that there are multiple sources of crime. These potential sources would include several large subcultures of potential offenders *and* the prevalence of crime situations. If convicted offenders are isolated but the prevalence of potential crime situations are not radically reduced, other individuals will take their place and become offenders. Statistics certainly seem to bear out this latter theory. For years large numbers of offenders, juvenile and adult, serious and non-serious, have been incarcerated, yet crime has not fallen. Indeed, according to the Federal Bureau of Investigation, the number of serious crimes reported to the police has increased over the past decade (105, p. 37). The problem in establishing the existence or nonexistence of an incapacitation effect lies in isolating all other effects so that there is a reliable basis for study. Thus far, no research method has been developed to do this, nor has any method been developed to delineate crime-affecting variables other than deterrence. Many attempts have been made, nonetheless, and several have claimed delineation of an incapacitative effect (32).

Deterrence theory, on the other hand, is neither conceptually simple nor straightfoward. Deterrence theory rests upon the assumption of offender rationality. It posits that offenders perceive changes in swiftness, certainty, and severity of punishment of crimes, and act rationally, accordingly. There is much disagreement regarding the existence and extent of this deterrent effect. One study even concludes that deterrence does not represent a theory, but a doctrine; and until it can be stated as a testable hypothesis, there is little prospect of useful deterrence research (44, p. 1). The consensus in the literature, however, is that there is a demonstrable deterrence effect (44, pp. 2-4). But this position states that the deterrence effect accounts for only a fraction of the variation in crime, and is much more operational for some crimes than for others (44, p. 424).

Kobrin and Bergman determined that deterrence accounted for approximately one-third of the variation in major felony crimes, while 50 percent of the variation was accounted for by sociodemographic variables (44, p. 30). Another study, the San Mateo County Post-demographic Study, reached the following supporting conclusions:

- "within each of the offense groups, whether there was a commitment to the Department of Corrections, jail, or probation, the length of term of that commitment had no statistically significant impact on recidivism;" and
- "those factors which did prove to have a statistically significant impact on recidivism were the offender's employment status, occupational skills, educational achievement, and prior involvement with the criminal justice system" (86, p. 5--emphasis added).

Differing opinions exist regarding deterrent effects on different types of offenses. Geerken and Gove (32, p. 439) conclude that deterrence is least likely to be in effect for violent crimes and most likely to be in effect for property crimes like: burglary, auto theft, and larceny. Homicide and assault seldom appear to be predominately rational acts, and rape is more complex. Unlike homicide and aggravated assault, rape is rarely committed in anger, and thus it would seem that the assessment of risk by the offender would be weighed against the potential legal penalty (32, p. 427). Furthermore, alcohol and drugs have been determined to be a factor in a substantial percentage (33 to 50) of all homicides, rapes, and aggravated assaults (32, pp. 428-429). This fact limits any deterrent effect for those offenses. One irony is that in justice system processing, those crimes for which the deterrence effect is least in evidence, or least operable, are also the crimes characterized by highest clearances by arrest rates, and by assignment of the most severe sanctions by the courts. Kobrin and Bergman (44) conclude that the deterrent effect is most evident in police processing and is substantially reduced by court processing.

Outcome Effectiveness of Police Processing

Police input and output levels have changed dramatically in the last dozen years. Following the riots of the middle 60's, and the subsequent creation of LEAA, aggregate police expenditures on a national level more than doubled in the next ten years. LEAA made billions of dollars available both for the purchase of highly refined police equipment and for the development of innovative police programs. Whether these resources and techniques have resulted in greater effectiveness in diminishing serious crime and the related costs is hard to measure. It is very difficult, given existing data sources, collection system, and research techniques, to isolate one relationship (e.g., between aggregate crime production and a single explanatory variable, such as police processing) from the complex interrelationships that apparently exist. More difficult still is to distinguish the effect of individual police functions on overall crime production levels. Unlike measuring the effectiveness of correctional programs (where program participants can be "tracked" through program duration and their future crime activity approximated by their subsequent repenetration into the juvenile justice system), police outcome effectiveness can only be measured in terms of impact on some segment of society, such as a neighborhood. This raises a second problem, which is how to measure police outcome effectiveness. Arrests and clearances are a measure of police activity or output reported by police officers themselves, with considerable variation in reporting procedures. As such, they constitute measures of police productivity, but do not constitute measures of outcomes. Furthermore, the number of crimes reported is also directly related to the amount of police resources; or, more specifically, to the police resources allocated to patrol in the community. Several studies have demonstrated a correlation between police presence in the community and reporting rates. This correlation would have a biasing effect on official statistics such as those contained in Uniform Crime Reports. Thus, researchers are left with only one source of unbiased statistics: victimization studies. Victimization data, except in the few cities where data collection has taken place, are statistically extrapolated from a core sample of households. Current data collection procedures, therefore, preclude any totally unbiased determination of the effectiveness of police processing. Several studies, however, have attempted to minimize these problems by providing at least partial answers to the problem of determining police outcome effectiveness. One of the most important of these studies is the Criminal Investigation Process conducted by the Rand Corporation (4). This study examined police processing in general, but focused on the investigation process as separate from police crime prevention and control activities. Among the study's major conclusions were:

- On investigative effectiveness: differences in investigative training, staffing, workload, and procedures appear to have no appreciable effect on crime, arrest, or clearance rates (4, pp. 226-229).
- The method by which investigators are organized (i.e., team policing, specialists versus generalists, patrolman-investigators) cannot be related to variations in crime, arrest, and clearance rates (4, pp. 226-229).
- On the use of investigator's time: substantially more than half of all serious recorded crimes receive no more than superficial attention from investigators (4, pp. 229-230).
- The data is consistently revealed that an investigator's time is largely consumed in reviewing reports, documenting files, attempting to locate and interview victims on cases that experience shows will not be solved. For cases that are solved (i.e., a suspect is identified), an investigator spends more time in post-clearance processing than he does in identifying the perpetrator (4, pp. 229-230).
- On how cases are solved: the single most important determinant of whether or not a case will be solved is

the information the victim supplies to the immediate responding patrol officer. If information that uniquely identifies the perpetrator is not presented at the time the crime is reported, the perpetrator by and large will not be subsequently identified (4, pp. 229-230).

- On how cases are solved: of those cases that are ultimately cleared, but for which the perpetrator is not identifiable at the time of the initial police incident report, almost all clearances are a result of routine police procedures (4, pp. 229-230).
- On collecting physical evidence: many police departments collect more physical evidence than can be productively processed. Analysis shows that allocating more resources to increasing the processing capabilities of the department can lead to more identifications in some other investigative actions (4, p. 230).
- On investigative reporting: in relatively few departments do investigators consistently and thoroughly document the key evidentiary facts that reasonably assure that the prosecutor can obtain a conviction on most serious applicable charges (4, p. 232).
- On investigative thoroughness: police failure to document a case investigation thoroughly may have contributed to a higher case dismissal rate and a weakening of the prosecutor's plea bargaining position (4, p. 232).

These conclusions can be collapsed into summary conclusions: (1) that police resources can generally best be allocated to prevention and patrol activities and that resources deployed in investigation should concentrate on those crimes for which information is most immediately available (i.e., violent crimes--which also impose the greatest direct cost on society); (in economic terminology, the rate of return on police resources deployed in prevention and patrol activites will be higher than for investigation, therefore, the greater portion of police resources should be deployed in prevention and patrol); and (2) investigative effort could be better and more productively organized.

Later, when the effectiveness of different correctional processing functions is assessed, it will become apparent that these two conclusions are generally applicable across the whole spectrum of juvenile justice processing. There is considerable room for reallocation of resources among different functions within any one program, as well as an opportunity for reorganization within each of the different functions.*

Patrol Activities

Police patrol activities were conducted primarily on foot for many years. Gradually patrol activities became more motorized and by the early 1960's, the major portion of patrol activities in urban areas were conducted by automobile, especially in crime prone neighborhoods. In the late 1960's and in the 1970's, however, several "innovative" programs were established and directed at creating better community relations. These programs included team policing, which involved the placement of many police substations in the community, and the recruitment of civilians for neighborhood policing. The most extensive of these attempted innovations was team policing. This experience is instructive both in terms of the short- and long-term impact of innovations on police processing and criminal justice processing in general, and in terms of the short and long run police responsiveness to significant innovations.

Team Policing

Team policing grew out of police reform efforts undertaken in the wake of urban unrest in mid-1960's (15, p. 18). In 1967, the President's Commission on Law Enforcement and the Administration of Justice recommended that "police departments should commence experimentation with a team policing concept that envisions those officers with patrol and investigative duties combining under unified command with flexible assignments to deal with the crime problem in a defined sector" (15, p. 8). The Commission stressed the organizational aspects of team policing. Then, in 1973, the National Advisory Commission on Criminal Justice Standards and Goals report stated that the basic rationale for team policing is "that the team learn the neighborhood, its people and its problems" (15, p. 8). Team policing programs were initiated in a number of police departments, many with the aid of LEAA funding. Various surveys have listed 128 cities that have experimented with some form of team policing. In only a few, however, have the experiments lasted more than just a few years. The Police Foundation, for example, in 1973 published a book which included generally positive descriptions of team policing experiments in seven cities--Dayton, Detroit, New York City, Syracuse, Holyoke (Massachusetts), Los Angeles, and Richmond (California). Today, team policing exists in only two of those cities (Los Angeles and Syracuse) (15, p. 6).

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*For further discussion of the production and cost functions, please see: "The Multi-Output Translog Production Cost Function: The Case of Law Enforcement Agencies" (23); "Production, Cost, and Expenditure Determinant Functions of Police Services" (38); "Factor Demands in the Provisions of Public Safety" (79); "Quasi Returns to Scale in the Provision of Police Services" (80); "Police Effectiveness and the Production Function for Law Enforcement" (116); and "Economies of Scale and Municipal Police Service: The Illinois Experience" (117).

Evaluations of team policing efforts have all been cautious in their conclusions, generally identifying small beneficial impacts of team policing relative to traditional policy procedures, but not concluding that team policing itself represents a major technological innovation. Three evaluations completed in the last year or so (though as yet unpublished) all adopt this cautious tone. One survey looked at team policing programs in 19 cities; a second focused on a single city, Cincinnati; and the most recent survey studied LEAA funded pilot programs at six sites: Boulder, Colorado; Elizabeth, New Jersey; Multinomah County, Oregan; Hartford, Connecticut; Santa Ana, California; and Winston-Salem, North Carolina (15, p. 7). The conclusion of this last study sums up the general tone of evaluation literature by concluding that:

> "The experiences at the six sites during a year or two do not provide a basis for a strong prescription on whether to implement team policing or not. We found both advantages and disadvantages associated with neighborhood team policing. These appear to be of relatively equal weight...Further, neither advantages nor disadvantages are strong...The program is not likely to help a great deal nor is it likely to hurt. The merits and liabilities of team policing appear roughly in balance" (15, p. 7).

If one studies the team policing experiences as reflected in the various evaluations and descriptions, a consistent pattern emerges. In almost every police jurisdiction where the team policing concept was implemented, participating officers embrace the innovations enthusiastically. These officers are especially pleased with the decentralized decision-making and freedom from departmental dress regulations aspects. The community generally responded positively as well. But what happened after a short time was that the latitude accorded through decentralized decision-making slowly began to be undermined by decisions from above, and laterally by officers in nonexperimental sectors of the jurisdiction. Continual undermining typically resulted in the eventual discontinuance of team policing altogether or evolved into a "watered-down" program characterized by little difference from traditional policing methods (15).

Once again, the conclusion emerges that two of the most important variables affecting positive processing outcomes are commitment and enthusiasm on the part of processing personnel (regular, part-time, or volunteer). These variables, being very difficult to quantify, are typically relegated to a very minor position in the overall evaluation, or are ignored altogether. Furthermore, processing personnel characterized by the greatest commitment and enthusiasm are typically those least likely to adhere to administrative standards developed internally. Hence, innovative programs which generate commitment and enthusiasm, typically generate resistance among existing administrators; and the programs are slowly undermined or discontinued.

One modeling study of the entire justice system attributed this resistance to innovation to a "self-regulating apparatus" in every administrative hierarchy which "serves to stabilize operations and maintain efficiency at the expense of achieving effective, unified crime control policies" (18, p. 261).

Not all innovative programs, however, are progressively undermined and discontinued. Some police innovations spread very quickly and continue to endure. These innovations, however, are characterized by the use of sophisticated hardware or highly specialized processing functions, rather than by commitment or enthusiasm in establishing closer community ties. Such successful innovations include specialized investigation and apprehension teams. Administrators tend to heartily endorse such programs. When such programs are discontinued, it is typically because local legislatures balk at the high cost of maintaining or operating such teams.

One other alternative to traditional police processing is subcontracting on the part of a jurisdiction to another police jurisdiction, or to a privately operated processing program or corporation. In such subcontracts, desired outputs and outcomes could be specified, as was done by the city of Rancho Palos Verdes, California with the Los Angeles County Sheriff's Department.

In general, the effectiveness of police processing in achieving reductions in crime, particularly serious crime, can be effected by removing offenders from the community and, thereby, deterring actual or potential offenders from commiting as much crime as they would in the absence of any police intervention. Effectiveness of police processing, however, is only one of several determinants of overall crime production. The major contribution of police processing comes from patrol activities. Most arrests result from immediate or very quick police response to reported crime (4, p. 225) whereas relatively fewer crimes are solved by investigation of crimes where little immediate information exists.

Up to now, this analysis has focused on whether police processing achieves a reduction in crime levels. If the focus of the analysis is shifted to discover if crime costs are diminished by police processing, another major relationship is suggested. This relationship is concerned with whether initial police contact is a determinant of the overall direct costs of crime. A major portion of the high cost of violent crime is psychic injury and the attitudinal behavior on the part of the responding officer is critical. When responding officers are compassionate and sensitive, as well as thorough in documenting evidence, the costs of violent crime to the victim will be substantially less. Whereas if the tone of the police officer is very cool or dispassionate, the costs are higher. Once again, subjective variables are crucial in diminishing crime costs.

Citizen Patrols

One other innovation related to police processing that involves one of the major police functions is the emergence of citizen patrols. Citizen patrol projects, like team policing and other innovative police programs designed to improve police/community relations, grew after the urban unrest in the mid-1960's. A recent study indicated that there are more than 800 citizen patrols currently operating in urban areas where the population is 250,000 or more (119). The study also determined that citizen patrols do not die out quickly. Citizen patrols last an average of four to five and one-half years (considerably longer than team policing programs!). Furthermore, unlike innovative police programs, only a small number of citizen patrol programs are government funded. Only six had LEAA financial support, and only another ten patrol groups received funds from local government offices. Citizen patrols are generally low cost operations. Typically, they consist simply of a group of community residents banding together to patrol neighborhoods with the goal of preventing crime. These patrol efforts are primarily aimed at preventing residential crime.

The previously mentioned study of citizen patrols across the country attempted to determine the effectiveness of the patrols (119, p. 22) by measuring both outcomes and outputs. The project staff decided that outcome evaluation was not possible for the same reasons which were previously delineated in this study, that the only real substantive data would be actual victimization data, but such data were not forthcoming. Also, it was felt that "reported crimes would not be a substitute for victimization data because crime statistics reflect only crimes actually reported to the police" (119, p. 5). The patrol outputs were intended to estimate whether there was an increased sense of security on the part of the community and improved police/community relations. The evaluation effort indicated the existence of outputs but was unable to draw any conclusions about the outcome effectiveness of citizen patrol projects.

Unlike police and corrections functions, a major function of court processing is to ensure the rights of the defendant. Large numbers of dismissals in serious crime cases are due to technical due process violations on the part of the police, or pre-adjudicatory court processing services which diminishes the effectiveness of court processing in reducing crime levels. Such dismissals, if substantial, also diminish the deterrence and incapacitation effects of police processing to such a degree that other offenders begin to assume that an arrest will not lead to conviction. A major function of the courts, therefore, is to serve as a check on the performance of the police and corrections. The courts regulate and control the flow of offenders from police processing into corrections and back into the community. Ideally, the courts weigh aggregate costs in an individual situation.

The costs weighed are those associated with crimes committed plus the potential commission of additional crimes, against costs to the offender and indirect costs to the community. These costs are manifested in terms of system processing and offender unproductivity. The decision to release or to process the offender in a community setting, versus processing in an isolated, secure setting, is then based on the level of trade-off between these costs.

In actuality, however, several distortions take place. It is incontestable that there is enormous variation among jurisdictions in the adjudication and disposition of crimes. This is true even when the offenders and the crimes with which they are charged exhibit similar characteristics. It is this variation which has, in good part, stimulated the legislative limitations on judicial discretion. Some of the variance in the use of discretion, however, is due to a conscientious judicial perception of the dispositional choices available. Judges in jurisdictions with secure correctional programs which are humane may place certain juveniles in such programs, whereas other judges perceiving secure programs as inhumane, will place the offender in a community-based correctional program instead. Much of the variation, however, appears to be attributable to the fact that some judges simply incarcerate much more than others.

Another distortion affecting court processing effectiveness is the long delays which occur between arrest and disposition. Court delays in large urban jurisdictions are particularly widespread. There is some evidence which indicates that witnesses are less eager to participate after a long delay. Court delays also contribute to the rate of dismissal and the number of plea bargains which are negotiated (70, pp. 13-16).

Court Processing Innovations

Despite the fact that the *perceived* lack of effectiveness of traditional court processing has led to a limitation of judicial discretion through legislative action, it has also spawned four major innovations: (1) diversion programs, (2) specialized court processing programs, (3) private processing, and (4) participation of prosecutors in adjudication and disposition proceedings.

A Diversion Program Serving Primarily Serious Offenders

Juvenile diversion programs typically serve status offenders or minor property offense violators. A few juvenile diversion programs accept juveniles guilty of serious offenses, but only one diversion program was located where *most* of the program participants are (or at least for the year 1974) serious offenders. This is the Neighborhood Youth Diversion Program (NYDP) in New York City, originally funded in 1970 as a three year project, and subsequently taken over by the New York State Division of Criminal Justice Services (72). Youth charged with rape, aggravated assault, robbery, and burglary, as well as lesser crimes, are referred to the program. Referrals are received from the police, the intake section of the probation department, and by the Family Court. The services include an in-program education program, psychological testing, medical examination, psychiatric counseling, and there are some referrals to community mental health service centers. In 1974, 396 youth were successfully diverted at a cost of $1,000 per youth.

Specialized Court Intake Programs

Specialized court intake centers designed to provide an intensive battery of testing and counseling services to subpopulations of juveniles who have been convicted of offenses and are awaiting disposition are not rare. Court intake programs, however, with authority to place juveniles convicted of serious crimes in correctional alternatives of their own choosing, are rare. One such program that has the authority to place serious offenders is the Wayne County, Michigan Intake Center. This agency is located within a large umbrella program called the Decentralization Project (57). As part of the Decentralization Project, a study of the effectiveness of alternative programs within the project and the county was undertaken. An evaluation determined that intake processing placement of serious offenders in the community setting was effective and cost-effective relative to other correctional alternatives, involving up to three month stays. After three months, placements were determined to "deteriorate in effectiveness." They concluded that this was due to "the earlier release of the most successful community youth, and the concomitant increase (at around six months) in the proportion of 'difficult' youth remaining in the community population" (57, p. 45).

The intake center's method of placing juvenile offenders is instructive as an example of juvenile justice system fragmentation. The intake center was designed to supplement the Wayne County Juvenile Court processing. However, a pattern soon developed with regard to the types of youth processed and placed. Court intake officers placed status offenders and juveniles guilty of minor offenses on probation, or referred them to the State. Juvenile court judges placed the "most placeable" (primarily white) serious offenders in private institutions. The most serious offenders, therefore, were passed on to the intake center which then proceeded to make use of existing Decentralization Station Project residential, community-based programs. Most of these juvenile offenders were successfully placed there. Therefore, the most serious offenders were being placed in a community program, while the less serious offenders were being placed in institutions.

Private Processing of Serious Juvenile Offenders

In Region II in Massachusetts, all juveniles charged with crimes, even the most serious crimes, are referred by the police to a privately operated processing program. This organization was called the Community Advancement Program (CAP) whose job it was to provide the appropriate level of detention supervision, ranging from release to parents, to secure detention. Those juveniles determined to need some level of detention supervision, but not residential processing, are "tracked." Tracking in this instance means that the juvenile was accompanied and supervised by a staff member for at least five hours a day, seven days a week. CAP also provides treatment services, under contract with the Massachusetts Department of Youth Services, to adjudicated delinquents. CAP receives an average of $120 per week for nonresidential processing.

Participation of the County Prosecutor in Adjudication and Disposition

While the increased participation of the county prosecutor in juvenile court processing does not constitute an innovation in the sense of a new experimental program, it does represent a depature from the norm. Traditional informal court processing has been largely in response to the "perceived" leniency or ineffectiveness on the part of the court in processing serious juvenile offenders.

A number of courts have special career or violent offender bureaus in the district attorney's office, funded by LEAA as part of its "career criminal" program (54). Such bureaus typically focus on adult offenders, although district attorneys generally have the option of involving themselves in juvenile court cases. District attorneys are more likely to participate in juvenile court adjudication and disposition when serious offenses are involved. Two recent evaluations of special district attorneys' programs, the Bronx County District Attorneys Major Offense Bureau, and the Suffolk (Massachusetts) Major Violators Project found that there were significantly smaller delays between arrest and disposition (54, 71). The Major Offense Bureau (MOB) median time was 97 days, as compared to over 400 days for other bureaus within the district attorney's office. Similarly, the Major Violators Program (MVP) median time was 112 days, as compared to 341 days. Increased conviction rates also resulted for both programs (MOB, 96 percent, as compared to 84 percent; MVP, 96.4 percent, as compared to 87.2 percent); and the severity of sentence increased (MOB, a maximum sentence of ten years, as compared to three and one-half years; MVP, 12 years and two months, as compared to nine years and eight months). Both programs, therefore, effect significant contributions to all three components of deterrence. Moreover, by focusing on chronic serious offenders, they contributed to an incapacitation effect.

These, of course, represent output rather than outcome effects. If deterrence and incapacitation are effective, then such processing programs will realize an outcome effect as well.

Outcome Effectiveness of Detention Processing.

When detention processing is examined, the same problems are encountered as in court processing. The first is that the major function of detention, as spelled out by the courts, is not to protect society but to insure that the offender will appear in court. Societal protection is subordinate to insuring that the offender will be processed. These two objectives can and do conflict, such as when a juvenile convicted of several serious offenses is charged with a new one and is released on recognizance rather than detained. Outcome measurement is concerned solely with subsequent crime production.

The rate at which participants in alternative detention programs show up at court hearings represents an output measure. Studies of detention generally focus on this type of output measurement and evaluation. Also, they typically include only a descriptive assessment of outcome measurement, or they ignore it altogether. Outcome measurement would, of course, be very difficult. The same problems are present as in other processing functions in separating out factors affecting crime production and the effect of detention on outcome effectiveness.

The most recent large scale detention evaluation is the Use of Secure Detention for Juveniles and Alternatives to Its Use (77). The authors, Pappenfort and Young, included outcome evaluation as well as output evaluation. Arrests were used as the outcome measure. Arrests were not differentiated by type of crime allegedly committed, however. Table 46 (p. 172) presents the results of the Pappenfort and Young evaluation of outcome and output effectiveness over the detention time period (77, p. 125). A breakdown of arrests by crimes allegedly committed would be necessary to provide a basis for analyzing outcome effectiveness in terms of the crime cost imposed.

A question left unaddressed here, and in most other studies, is the longer run impact of secure detention. Coates, Miller, and Ohlin (2) did examine the long run consequences of both the decision to detain and the decision as to what type (with regard to security) of detention processing to use. They were, however, unable to objectively determine these long run consequences, although the interviews they conducted with juveniles led them to consider some long run effects.

Outcome Effectiveness of Correctional Processing

Output and outcome effectiveness will be briefly explored for two States characterized by innovative juvenile justice

TABLE 46

PERCENTAGES OF YOUTHS WHO RAN AWAY OR ALLEGEDLY COMMITTED NEW OFFENSES, FOR 14 ALTERNATIVE PROGRAMS

TYPE OF PROGRAM	PERCENT		
	Interim Offenses	Running Away	Total
Home Detention Programs:			
Program A..........	4.5	3.0	7.5
Program B..........	4.4	8.4	12.8
Program C..........	2.4	0.0	2.4
Program D..........	5.2	0.0	5.2
Program E..........	2.4	1.9	4.3
Program F..........	10.1[ab]	...[ab]	10.1[ab]
Program G..........	5.5	0.0	5.5
Attention Homes:			
Anaconda...........	NA	NA	NA
Boulder............	2.6[a]	2.6[a]	5.2[a]
Helena.............	NA	NA	NA
Programs for Runaways:			
Jacksonville.......	...[c]	4.1	4.1
Pittsburgh.........	0.0[ad]	7.8[d]	7.8[ad]
Private Residential Foster Homes:			
New Bedford........	0.0	10.0	10.0
Springfield........	1.2	6.8	8.0

[a] Information based on interview only.

[b] Runaways may not be included.

[c] Not applicable.

[d] Includes youths not within court jurisdiction.

[NA] Information not available.

Source: 77, p. 125

system processing: Massachusetts and Minnesota, and by representative programs among the corrections program types: nonresidential community-based supervision, residential community-based programs, outward bound, and secure processing.

Statewide Innovative Correction Processing: Massachusetts and Minnesota

Massachusetts and Minnesota represent the most innovative States in terms of juvenile justice system programs. Massachusetts is innovative because of the deinstitutionalization of juvenile offenders in 1972, and their subsequent reliance on community-based programs and small, secure, primarily privately operated treatment programs (2, 75). Minnesota is also considered innovative because of its statewide program of decentralized correctional programming at the county level for both juveniles and adults (39, p. 1). In addition, both States are characterized by highly refined data availability and analysis. The Minnesota Community Corrections Act is actually a second generation extension of California's probation subsidy program. A similar, though considerably more complex, funding mechanism determines the amount of State funds to be dispersed at the county level based on commitments to State institutions. The overall outcome effectiveness of Minnesota's Community Corrections Act has yet to be demonstrated, although the Act was instituted in 1974, since membership is voluntary and counties have trickled in one by one, or in small groups (39, pp. 21-24). Minnesota's most populous county, Hennepin (Minneapolis) did not enter until January 1, 1978. Outcome measurement has consequently not yet been undertaken. In Massachusetts, however, nearly seven years have passed since the closing of the last centralized State juvenile institution, and their subsequent reliance on small-scale community programming. Coates, Miller, and Ohlin undertook a number of different studies of the deinstitutionalization experience. One of the studies was a 12 month outcome comparison of juveniles processed in the old system and released in fiscal year 1967-1968, and juveniles processed in the deinstitutionalized system and released in 1973-1974. Table 47 (p. 175) shows the results of that recidivism comparison study (2, pp. 152-155). Region VII showed a decline in recidivism in the new system, relative to the old, using reappearance in court as a recidivism measure. However, when a disposition (or sentence, since juveniles processed in adult courts the next time around were included) on probation or commitment to a corrections program was used as a recidivism measure, Region II showed a major decline of approximately one-third. In the original study written in 1975, Coates, Miller, and Ohlin included in their conclusions that:

> - In the newer system, since around 80 percent of the youth are in relatively open settings with relatively low recidivism rates, the policy implication is clear: it is possible to put the majority of youth in open settings without exposing the community to inordinate danger. This policy implication holds regardless of whether the selections are due to selection or program effect.
>
> - There are regional differences in the new systems. In particular, the region that appears to have implemented the range of new programs most aggressively has cut its recidivism rate virtually in half.

This latter conclusion was somewhat exaggerated because the data was later adjusted downward slightly so that the actual cut in recidivism over a 12 month period amounted to a third when probationer recommitment was the recidivism measure. In the original table, the drop in recidivism for the first six months was more than half, from 59 to 29 percent.

Coates, Miller, and Ohlin in their later study include a breakdown of recidivism by correctional program type. Table 48 (p. 176) shows that the highest recidivism rate is associated with jail and secure care, while the lowest recidivism characteristics are correlated with nonresidential care, foster care, and group homes (2, p. 2). Coates, Miller, and Ohlin do

TABLE 47

RECIDIVISM RATES FOR BOYS IN THE 1968 AND 1974 SAMPLES BY REGION

RECIDIVISM CRITERIA	REGION							
	I	II	III	IV	V	VI	VII	Total
				(Percent)				
1. Reappearance in court								
12 months								
1968	$73^{(37)}$	$69^{(39)}$	$48^{(33)}$	$58^{(33)}$	$62^{(16)}$	$75^{(53)}$	$80^{(25)}$	$66^{(236)}$
1974	$73^{(41)}$	$75^{(53)}$	$54^{(48)}$	$68^{(44)}$	$80^{(46)}$	$85^{(105)}$	$69^{(58)}$	$74^{(395)}$
2. Probation or commitment								
12 months								
1968	$40^{(37)}$	$67^{(39)}$	$24^{(33)}$	$36^{(33)}$	$44^{(16)}$	$57^{(53)}$	$60^{(25)}$	$47^{(236)}$
1974	$58^{(41)}$	$45^{(53)}$	$40^{(48)}$	$52^{(44)}$	$65^{(46)}$	$64^{(105)}$	$50^{(58)}$	$55^{(395)}$

The 1974 sample includes eighteen boys who did not receive a complete set of interviews.

Parenthetic numbers in $^{\text{(superscript)}}$ indicate size of sample.

Source: 2, p.52

TABLE 48

RECIVIDISM CRITERIA BY FINAL PROGRAM TYPE: ONE-YEAR COURT REAPPEARANCE AND DISPOSITION DATA

	NUMBER	REAPPEARANCE IN COURT (Percent)	PROBATION OR RECOMMITMENT (Percent)
Nonresidential	(56)	70	45
Foster care	(63)	49	41
Forestry	(93)	70	50
Group homes	(125)	62	46
Boarding schools	(17)	59	53
DYS secure care	(67)	82	67
Jail	(7)	86	71
No initial program	(31)	84	55

Source: 2, p. 2

not interpret the results in terms of the relative seriousness of offenders generally processed within the different programs. As with police and court processing, there are difficulties inherent in determining the effectiveness of corrections processing.

Outcome Effectiveness of Nonresidential Community-Based Processing

Lipton, Martinson, and Wilks, in their study of all correctional evaluations conducted between 1945 and 1968, adopted a generally negative conclusion that the field of corrections has not yet found satisfactory ways to reduce recidivism by significant amounts (10, p. 234). They did, however, state that: "A clear finding is that intensive probation supervision is associated with reductions in recidivism among males and females under 18 years of age" (10, p. 27). The studies upon which this conclusion is based reduced case loads to 15 or 16 for the experimental groups, while control groups were placed in case loads varying from 50 to 101. With regard to the intensive probation programs, Lipton, Martinson, and Wilks stated:

> If intensive supervision experiments combine smaller case loads with agents specially selected for a particular personal quality "such as empathy," effects will be massed unless agents with varying amounts of this quality are assigned to sub-groups of both experimentals and controls with an analysis of variance design. In addition, the findings will be of little practical use if the personal quality selected cannot be imparted through ongoing training to the average agent in an agency (10, p. 27).

Lipton, Martinson, and Wilks refer readers to the recurring outcome effectiveness variables of enthusiasm or empathy, and the commitment of program personnel. Lipton, Martinson, and Wilks pose a viable evaluation design for testing the outcome effectiveness of these variables. So far, this design has not apparently been tested out. Furthermore, the authors also pinpoint a major problem in replicating their successful

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study. This problem is a major reason why so many replications of successful projects fail to achieve an equal measure of success; it is very difficult to impart empathy, enthusiasm, and commitment.

Other studies of intensive probation and outcome effectiveness show mixed results. One examination of probation officer behavior under "normal" and "intensive" probation programs discovered that probation officers use a substantial portion of their extra time writing better reports. Similarly, when probation officers were given more time to complete pre-disposition or pre-sentence investigations, the time spent in actual investigation did not increase proportionally, as compared with the time spent in writing up the report (17, p. 7).

No large-scale evaluation of day-care programs was discovered by the author. There is, however, one nonresidential, non-probation, correctional program directed exclusively at serious juvenile offenders: Project New Pride. This program, located in Denver, is designated as an Exemplary Project under LEAA's Exemplary Project Program. Project New Pride (20, pp. 2-3) only accepts participants that reside in Denver County, and are 14 to 17 years of age. Also, there must be a recent arrest or conviction for: burglary, robbery, or assault related to robbery; and two or more prior convictions (preferably robbery, burglary, or assault). An intensive program of services is provided in four main areas: academic education, counseling, employment, and cultural education. Project New Pride services 20 juveniles at a time for a period of four months. Therefore, 60 juveniles are serviced annually. Average costs per client day amount to $33, which amounts to $3,960 per client served (20, p. 72). While these costs are high for a nonresidential program, it would be even higher if Project New Pride did not rely so heavily on volunteer services. When the types of juveniles processed are considered, and the cost of Project New Pride contrasted with costs of other programs serving exclusively or primarily serious juvenile offenders, Project New Pride costs compare very favorably. Further, if the outcome costs or the cost-effectiveness of the program is evaluated, Project New Pride represents an impressive accomplishment.

As previously described, the classical evaluation design was originally incorporated into Project New Pride's program and then abandoned in the face of public pressure. The original control group was to be barred from receiving any services (other than custody and support) while undergoing processing. The juveniles in the control group accordingly did receive services. The evaluators conclude that because of the "bias," the effectiveness of Project New Pride was underestimated. Yet, in a real world situation, the evaluation question is, how effective is Project New Pride in relation to existing processing alternatives? Only 27 percent of the participants in the first six program periods were rearrested during participation, as compared to 32 percent of the control group. There is one statistical bias present that may in fact understate this differential because Project New Pride clients differ considerably from members of the control group in prior conviction records. If number and type of prior convictions is a significant determinant of current crime production, then the differential is understated.

Outcome Effectiveness of Community-Based Processing

Because community-based residential programs are so diverse, ranging from only providing room, board, and rudimentary group therapy to those providing a battery of sophisticated services in-program, national evaluations of residential community programs as a whole are not really meaningful. All halfway houses providing room, board, and custody services, in-program, constitute one type of group home residential facility. Group center providing educational/vocational training services, in-program, constitute another. These services can be compared.

Typically, however, evaluations are conducted on an individual program or a jurisdictional level. Outcome comparisons among comparable groups of programs on a large scale are seldom encountered. Furthermore, since this report's scope is limited to that of the serious juvenile offender, the problem of separating out programs-specific outcome effects again becomes important.

There are two programs, however, which have received considerable attention because of their reputed success in providing in-processing services to serious juvenile offenders. The two programs are United Delinquency Intervention Services (UDIS) in Chicago, and Elan in Maine. UDIS is a large "umbrella" correctional processing program, comprised of many individual private residential and nonresidential programs (66, p. 3). Elan is a private residential program which takes in many serious offenders, but includes referrals from parents, psychiatrists, and other private sources as well.*

UDIS was initiated in 1974 as a community-based alternative to incarceration. Juveniles with extensive criminal histories convicted in juvenile court on a new charge are referred to UDIS for processing. UDIS then places each juvenile, after extensive investigation, in one or more programs with which it contracts. Some juveniles, therefore, are serviced in residential settings, others in nonresidential. The services provided vary considerably.

A large-scale outcome evaluation of UDIS was conducted recently by the American Institutes for Research (AIR) (66). AIR originally intended to contrast the outcomes of juveniles processed through UDIS, and juveniles processed through existing Illinois juvenile institutions. But the resulting evaluating conclusion was that UDIS and institutionalization provided a common impact:

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*For a brief description of Elan and UDIS see Volume III, Part C, Program Interventions, of this report series entitled, A National Assessment of Serious Juvenile Crime and the Juvenile Justice System: The Need for a Rational Response.

> "Whether the program was UDIS or DOC (Department of Corrections), correctional intervention in the life of the chronic juvenile offender in this study had a powerful and apparently long-term inhibiting effect on subsequent delinquent activity" (66, p. 4).

Specifically, when post-intervention police records for combined UDIS and DOC samples were compared to their police records during the year preceding intervention, it was determined that arrests had declined by 67.8 percent. Similarly, court appearances decreased by 64.4 percent, violence related offenses by 73.7 percent, and aggregate "seriousness" cost to the community by 65.2 percent (66, pp. 4-6). The reason that these statistics are so positive is that AIR focused on the total number of rearrests rather than the number of offenders rearrested following intervention. Using the latter statistic, the results are unimpressive as 64.9 percent of the UDIS sample was rearrested within a year after exit from the program, and 69.7 percent of the juveniles processed in and released from institutions were rearrested during the first year following release.

However, both the evaluation methodologies and their data base employed by AIR have come under attack, and a second evaluation is currently being conducted. The AIR report is unclear as to whether, in all cases, outcomes were determined for the first year of street time following release or simply for the first year following release. If the latter is the case, many juveniles would have served a portion of that year in detention, in residential corrections programs, or in institutions. If the AIR results are upheld, their evaluation will represent a significant step forward in understanding community process outcomes, and long-run effectiveness. In any case, UDIS represents the most ambitious local community-based correctional processing effort directed specifically at the chronic juvenile offender.

UDIS costed out, on the average, at $1,086 per juvenile per month, or $36 per day in 1976; institutional processing cost $1,178 per month, or $39 per day (66, p. 20). One critical finding which the AIR report noted in passing was that UDIS participants were 7.7 times as likely to commit another crime while participating in UDIS than were juveniles in Illinois juvenile institutions (66, p. 23). This finding, when translated into costs of crime, served to diminish the effectiveness of UDIS substantially and tilt the balance toward juvenile corrections as being both more effective and more cost-effective as well.

Elan is described as a residential psychiatric center for rehabilitating disturbed adolescents. This center is more a highly structured, self-help, therapeutic community than a conventional psychiatric facility. The intensive individual group therapy conducted within Elan is designed to raise the juvenile's self-esteem. About 200 youths are served at any one time with the average length of stay being about 15 months. The cost of participation is $1,400 per month, or $47 per day (Elan is a profit-making private enterprise). Several States, including Massachusetts and Connecticut, send serious juvenile offenders to Elan for processing. A few years ago, a controversy arose regarding the humaneness of treatment in Elan, but correctional authorities in Massachusetts and Connecticut defended the program and continued to send juvenile offenders there. Elan claims that 80 percent of its participants lead normal noncriminal lives upon final release. So far as is known, no independent outcome-effectiveness study of Elan has been conducted.

Outcome Effectiveness of Outward Bound or Forestry Camp Programs

Outward bound programs, or forestry camps as they are sometimes denominated, are operated in several States, including: Colorado, Massachusetts, Maine, and Minnesota. In such programs, juveniles (including serious juvenile offenders) are placed in a wilderness setting for a month or more and taught to survive in that setting on their own initiative. One study evaluated the outcome effectiveness of a cohort of 60 committed (to Massachusetts Department of Youth Services) juvenile offenders who participated in the outward bound program (16). Of the 60 youths, 50 "graduated" or were awarded a certificate. Of the 50 graduates over a four year period following parole, 30 percent were reincarcerated for a technical violation or on another charge. Of the ten who failed to graduate, 90 percent recidivated (16, pp. 548-549). Although the sample was small and the outcome measure crude, the results do substantiate what conceptually seems like a very good type of correctional program.

Outcome Effectiveness of Institutional and Parole Processing

In nearly every research study, institutional parolees and releasees are characterized by the highest recidivism rates of any juvenile corrections alternative. In Table 48 (p. 176), recidivism criteria for final program type in Massachusetts used reappearance in court as a recidivism measure. Recidivism for Department of Youth Services secure care parolees/releasees was 82 percent, compared to the next lowest recidivism rate of 70 percent for nonresidential programs and forestry programs. When probation or recommitment to the Department of Youth Services was a measure, recidivism for the Department of Youth Services secure care was 67 percent, compared to the next lowest rate of 57 percent for boarding schools.

Lipton, Martinson, and Wilks, in their study of outcome evaluation, made two conclusions regarding institutional outcome effectiveness:

- Early release from institutions (nine days prior to normal release date) does not produce any noticeable increase in recidivism; and for juvenile and youthful offenders, early release seems to be associated with reductions in recidivism. There is evidence that considerable cost benefits may be obtained by early release with no increase in harm to the community.

- For young offenders who must receive institutionalization, institutions with relatively restrictive conditions, combined with two-year terms, may be more effective than less restrictive institutions with shorter terms (10, p. 48).

The first conclusion does indicate that significant costs benefits could be generated. At a daily average cost of $68.50 (in 1977 dollars) for an incarcerated population of 40,000 juveniles, a national early release (90 days) program would generate a cost savings of $246,000,000. Of course, the $68.50 represents average total costs, while the true costs would not reflect capital costs and be approximately 20 percent lower or $170,000,000, still a very significant cost savings.

SUMMARY

In this chapter the input, output, and outcome effectiveness side of juvenile justice system processing, the obverse of processing cost analysis, has been considered. Evaluation was differentiated into process evaluation and outcome evaluation. Then, conceptual issues were explored, particularly the problems involved in outcome measurement and determination of contribution of program inputs and outputs to outcomes effected.

This exploration involved examining the different purposes of evaluation, evaluation designs, and evaluation shortcomings. Following the exploration of ideal world evaluation, an attempt was made to understand real world evaluation and how it differs from the "ideal." Outcome effectiveness of juvenile justice system processing was subsequently assessed, beginning with an overview of the juvenile justice system as a whole and focusing on deterrence and incapacitation. Each of the components or function areas of juvenile justice system processing--police, intake in court, detention, and corrections processing--was then assessed in terms of general outcome effectiveness. In addition, special programs servicing primarily serious juvenile offenders in each of the correctional subclassifications (nonresidential community-based programs, residential community-based programs, outward bound type programs, and isolated, secure processing) were described and assessed in terms of outcome effectiveness.

CHAPTER VI

OUTCOME COST ANALYSIS: COST EFFECTIVENESS

Previous chapters have been concerned with assessing the economic impact of serious crime on a component by component basis. In Chapter II, a methodology was developed for estimating the direct cost of serious crime on individual and aggregate crime levels, and applied to Uniform Crime Reports and National Crime Survey data to yield cost estimates. In Chapter IV, estimates of input and output processing costs were derived. Finally, in the last chapter, outcome processing was analyzed. In this chapter, the cost and effectiveness components which were previously estimated and analyzed are combined to yield a total picture of juvenile justice system processing programs, and to determine the extent to which crime production and the imposition of crime costs are impacted. The extent of this impact will be examined both absolutely and relative to other processing programs.

ECONOMIC EFFICIENCY: OUTCOME COST EVALUATION

Table 21 (p. 90) in Chapter IV presented an overview of cost analysis consisting of three components: input, output, and outcome costs. All three of these cost relationships represent important analytical and decision-making tools. Input costs permit a comparison of programs based on the resources expended over a specified time period. Output costs extend the level of analysis in decision-making one step forward. Since the length of time required to complete processing is included, output costs permit productivity and decision-making comparisons based on performance on an absolute level, or relative to other programs.

Outputs reduce social costs. For example, crimes cleared by arrest reduce crime and the damages to victims. If the value of these outputs can be measured in terms of the dollar decrement in victim damages per clearance (unit of output), this can be compared to the cost of producing an additional clearance. If outputs can be valued, it is possible to evaluate programs on an absolute cost-effectiveness basis. This is often referred to as conducting cost-benefit analysis. If the output cannot be valued, but can be measured, and the inputs needed to produce the output can be valued, it is possible to make relative comparisons between programs on an "input cost per unit of output" basis, to see which is more cost-effective. This is often referred to as cost-effectiveness analysis.

As one article states: "Given the assessment of program impact, a logical concern then becomes the relative extent to which outcomes achieved could have been achieved at lower costs and with greater efficiency" (5). Outcome costs or cost-effectiveness, and cost-benefit analysis provide the basis for addressing this concern. Cost-effectiveness and cost-benefit analysis are both types of outcome cost analysis. They are often used interchangeably, but technically they differ in that cost-effectiveness, the outcome measure, may or may not be quantified in dollar terms; whereas in cost-benefit analysis, the outcome measure is quantified in dollars. Thus, cost-effectiveness is a more inclusive term, and it will be employed rather than cost-benefit analysis in this report. Further, cost-effectiveness will be used interchangeably with outcome costs.

On the most basic level, outcome cost analysis allows for absolute and relative comparisons of performance at the program level. A program can be analyzed on an individual level by determining how its resource costs compare with reductions in crime (recidivism) or, better yet, the reduction in crime costs that it achieves. This comparison yields a measure of absolute efficiency. Programs, on the other hand, can be compared in terms of relative efficiency. On a more complex level, outcome cost analysis permits an analysis of contributions to reductions in crime, related to resource costs, by specific intervention within a program.

Conceptually, outcome cost analysis is very attractive to researchers and decision-makers. It is important to remember, however, that just as outcome cost brings together and heightens the advantages of both cost analysis and outcome effectiveness analysis, so too it assembles and aggravates the problems associated with each. Specifically, in cost measurement, the main problem includes all indirect resource costs to a particular service or program (inclusive of all proportionate central administrative costs), which often is quite difficult to determine. In outcome effectiveness measurement, the main problem lies in quantitatively measuring outcome, and in separating out the outcome contributions from that portion of outcomes attributable to other determinants. Because of this heightened complexity, outcome cost measurement and analysis can be, on an overall economic impact level, either a social blessing or an affliction. Much of this will depend upon the extent to which these problems are confronted and overcome.

Outcome cost, or cost-effectiveness, is a relatively new analytical innovation. Derived in the last 25 years, cost-effectiveness or cost-benefit measurement was first widely applied as an analytical and decision-making tool. The technique was used in transportation projects by the U.S. Army Corp of Engineers and interstate Highway System Planners. In these early applications, only those costs which were most easily quantified were included. As a result, in most cases benefits were overstated. Hindsight, however, provides an opportunity to view the consequences of including only those costs which are most easily quantified. Over time, the costs that were not easily quantified have proved to be social in nature and have now become such a high priority that society is aware of their presence. For example, the ecological cost of certain dams and the social costs of construction, maintenance, and use of intra-city expressways are now very much in evidence.

With time, outcome cost measures have progressively become more refined. Some of the problems in measurement have been overcome, especially in transportation applications. In criminal and juvenile justice system applications, however, outcome cost measurement and analysis is still fairly crude. If it is employed at all, it is usually used for the determination of outcome costs for individual intervention services within a program. As stated previously, many studies, though proffered as cost effectiveness or outcome cost evaluations, are really output cost evaluations. When outcome cost analysis is, in fact, employed, costs that are not easily quantified or measurable are typically excluded from the analysis. It is only at the present time that research interests are being enkindled in the sense that researchers are striving to overcome problems associated with the inclusion of these variables. This movement is fueled in great part by the research results and conclusions of Lipton, Martinson, and Wilks (10) in their study of the effectiveness of correctional treatment. Also, Martinson alone has addressed the general failure of justice system processing to effect a reduction in crime. Researchers are reexamining this evidence, and a consensus may be emerging. This consensus is that the most critical processing variables are those that are not easily quantified. These variables include: commitment and enthusiasm on the part of program personnel, staff, and administrators, and the degree of rapport between administrators, staff, and the juveniles who are processed. This development will be pursued later.

CURRENT OUTCOME COST EVALUATION

The most advanced, large-scale application of outcome cost measurement and analysis is the previously cited study by Grey, Connover, and Hennessey, "Cost Effectiveness of Residential Community Corrections: An Analytical Prototype" (35). The authors of this study are either current or former members of the Evaluation Unit of the Minnesota Governor's Commission on Crime Prevention and Control (now the Minnesota Crime Control Planning Board). The study assessed and assembled outcome cost measures for assorted public and private nonresidential and residential community-based corrections programs and State institutions (all in Minnesota). This outcome cost evaluation contributed to several major analytical refinements. The first was to differentiate cost in very short, short, and long-run terms. While these are commonly used concepts in economic analysis, they have not been widely employed in processing cost analysis and hardly at all in outcome cost analysis.

Briefly, very short-run analysis refers to a time period in which program costs are fixed, and only maintenance costs such as food, clothing, and medical care are variable. For example, very short-run costs are additional, or marginal costs incurred in housing juveniles for a short period of time (e.g., a week or a month) in a halfway house program.

Short-run refers to a time period in which more costs are variable, but some are still fixed. For example, if an additional three juveniles are placed in a halfway house program for several months, additional staff may be hired, but other staff, administrative, and facility costs will not change.

In the long run, however, all costs are variable. For changes in population clientele, renovation of facilities may take place, and new administrators and staff hired. All inputs can be adjusted.

Grey (35, p. 383) incorporates these three time dimensions into outcome cost analysis. Crime production was determined on an annual basis for three years prior to treatment. If an offender's initial offense occurred at least three years prior to treatment, the total number of offenses was divided by three to adjust to an annual rate. If the initial offense occurred between one and two years prior to treatment, then the total was divided by two. Finally, if the initial offense was six months to a year ago, then the total number of offenses was determined to be the annual rate. When the first offense occurred less than six months before treatment, the total was doubled to derive an annual rate (35, p. 383). The authors qualify their approach by stating: "This method undoubtedly overstates the predicted value of most cases, since it is well known that age is negatively correlated with criminal activity. This is especially true among juveniles who upon reaching age 18 are no longer subject to status offender laws." Once the predicted offense level has been defined, actual offenses are examined to yield the final product or outcome. Outcomes were defined by three measures: (1) offense filed, (2) offense sustained, and (3) non-status offense sustained.

Furthermore, the authors developed two indices of crime seriousness to more accurately determine outcome effectiveness. These two indices consist of a seriousness scale with ordinal rankings (based on a subjective assessment) and a severity index which listed the maximum possible sentence per crime as a percentage of expected lifetime of offenders. These two indices are presented in Table 49 (pp. 194-195; for source, see 35, pp. 386-367). They offer an interesting contrast to each other and to the Sellin-Wolfgang Index (11, pp. 1-10). Table 50 (p. 196) presents their determination of very short-run, short-run, and long-run costs of correctional processing alternatives

(35, p. 391) Probationed Offenders Rehabilitation and Training Programs (PORT) projects (see Table 50, p. 196) are semi-public, residential programs, and are governed by a board of citizens and public officials (62, p. 2). These projects represent a locally operated alternative to public processing of both juveniles and adults. As Table 50 (p. 196) illustrates, in very short-run terms, the lowest costs are associated with probation/parole and institutions (using the per capita daily cost). On the institutional level, this represents the presence of economies of scale, or advantages of size in providing inmate maintenance services. In the short and especially long-run terms, probation/parole is characterized by the lowest cost, by far. Institutionalization, on the other hand, is the highest, with residential, community-based programs in between. Table 51 (p. 197) extends the analysis to the outcome cost level (35, p. 394). When long-run costs per reduction in non-status offense categories are sustained, the outcome cost measure for probation is demonstrated to be the most cost-effective. Residential community-based programs serving juveniles without prior institutionalization is the next closest, and residential programs serving juveniles with prior records of institutionalization are the least cost-effective. When outcomes are measured in terms of a reduction in the seriousness, or severity, of offense sustained, probation continues to be by far the most cost-effective; residential community-based programs serving juveniles without prior institutionalization is next; and juvenile institutions are the least cost-effective.*

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*This may be partially due to variations in offense types for which juveniles are referred to different programs. For example, it is likely that juveniles committing the less serious offenses are more often placed on probation than in a secure institution. The correlation between reduction in severity of offense and program type may, therefore, be confounded by this factor.

TABLE 49

SERIOUSNESS AND SEVERITY SCALES USED IN JUVENILE RECIDIVISM EVALUATION

Offenses Rated	Seriousness Scale		Severity Scale
	Mean Seriousness Ratings[a]	Converted Seriousness Weights[b]	Severity Weights[c]
Homicide	1.02	94.1	100
Aggravated Rape	1.08[d]	79.4	42.1
Rape	1.08	79.4	14.0
Aggravated Arson	1.10	75.1	35.1
Simple Arson over $100	1.10	75.1	7.0
Simple Arson under $100	1.15	65.8	0.4
Aggravated Assault	1.15	65.8	7.0
Simple Assault	1.15	65.8	0.4
Kidnapping	1.15[d]	65.8	28.0
Aggravated Robbery	1.32	43.4	28.0
Simple Robbery	1.32	43.4	14.0
Auto Theft	1.73	19.3	7.0
Unauthorized Use of Motor Vehicle	1.73[d]	19.3	4.2
Burglary (occupied dwelling)	1.76	18.3	14.0
Burglary	1.76	18.3	7.0
Burglary (intent to steal)	1.76	18.3	1.4
Lookout for Burglary	1.76[d]	18.3	0.7
Attempted Burglary	1.76[d]	18.3	0.7
Possession Burglary Tools	1.76[d]	18.3	4.2
Sex Offenses (except rape)	1.80	17.1	—
Indecent Liberties	1.80[d]	17.1	7.0
Immoral Conduct	1.80[d]	17.1	7.0
Soliciting Prostitute	1.80[d]	17.1	7.0
Attempted Rape	1.80[d]	17.1	7.0
Prostitution	1.80[d]	17.1	7.0
Indecent Exposure	1.80[d]	17.1	0.4
Aggravated Forgery	1.82	16.5	14.0
Simple Forgery	1.82	16.5	4.2
Uttering a Forged Instrument	1.82	16.5	4.2
Drug Laws (except alcohol and glue)	1.84	16.0	—
Possession of Narcotics	1.84[d]	16.0	7.0
Possession with Intent to Sell Marijuana	1.84[d]	16.0	2.1
Possession of Marijuana	1.84[d]	16.0	1.4
Possession or Sale of Controlled Substance	1.84[d]	16.0	1.4
Possession of Hypodermics	1.84[d]	16.0	1.4
Larceny (theft over $100, under $2,500)	1.84	16.0	7.0
Theft (under $100)	1.97	13.1	0.4
Aggravated Criminal Damage to Property	1.97	13.1	7.0
Criminal Damage to Property	—	—	0.4
Dangerous Use of Firearms	1.97[d]	13.1	0.4
Escape from Correctional Institution	2.00	12.5	0.4
Runaway from Correctional Institution	2.00[d]	12.5	0.4
Purse Snatching	2.15	10.0	7.0
Receiving Stolen Property	—	—	—
(over $100, under $2,500)	2.10	10.8	0.4
Receiving Stolen Property under $100	2.15	10.0	7.0
Possession of Concealed Weapons	2.15[d]	10.0	0.4
Possession of Burglary Tools	2.15[d]	10.0	4.2
Vandalism	2.15	10.0	0.4
Breaking and Entering	2.15[d]	10.0	2.1
Riding Stolen Vehicle	2.15[d]	10.0	2.1
Glue Sniffing	2.15	10.0	1.4
Beyond Control of Parents[e]	2.43	6.9	0.1[f]
Parole Violation	2.43	6.9	0.2[f]
Probation Violation	2.43[d]	6.9	0.2[f]
Deportment Injurious to Self[e]	2.43[d]	6.9	0.1[f]
Attempted Suicide	2.43[d]	6.9	10.5

Continued on Next Page

TABLE 49

(continued)

Offenses Rated	Seriousness Scale: Mean Seriousness Ratings[a]	Seriousness Scale: Converted Seriousness Weights[b]	Severity Scale: Severity Weights[c]
Resisting Arrest	2.43[d]	6.9	1.4
Rioting	2.43[d]	6.9	1.4
False Fire Alarm	2.50	6.4	0.4
Shoplifting	2.52	6.2	0.4
Opening Sealed Letters	2.52[d]	6.2	0.4
Cash Check with Insufficient Funds	2.52	6.2	0.4
Traffic Offense (except parking)	2.52	6.2	0.4
Tampering	2.58	5.8	2.1
Game Law Violations	2.65	5.3	0.4
Incorrigibility[e]	2.67	5.3	0.1[f]
Obscene Phone Calls	2.67[d]	5.3	0.4
Liquor Law Violations	2.69	5.1	0.4
Disorderly Conduct	2.69	5.1	0.4
Disobedient[e]	2.78[d]	4.7	0.1[f]
Contempt of Court	2.78	4.7	0.4
Trespassing	2.82	4.5	0.4
Absenting[e]	2.87	4.2	0.1[f]
Runaway[e]	2.91	4.1	0.1[f]
Truancy[e]	2.91	4.1	0.1[f]
Wayward[e]	2.91	4.1	0.1[f]
Curfew and Loitering	3.00	3.7	0.1[f]
Lurking	3.00[d]	3.7	0.4

a. Ratings by 25 probation/parole officers and 23 staff members of Minnesota Reception and Diagnostic Center. The rating numbers are intended to reflect original rankings, not relative weights.

b. Weight derived by the following formula:

$$\text{Seriousness Weight} = \frac{1}{(\text{seriousness rating})^3} \times 100$$

c. Severity weights derived by taking maximum statutory sentence for each offense and dividing by 71.3, which is the average life expectancy of a U.S. citizen, and multiplying by 100.

d. No rating was actually given to these offenses by the 48 raters since they were not included in the list of offenses to be rated. It is assumed that they would have received the indicated rating had they been included in the list.

e. Status offenses.

f. No statutory maximum exists for these offenses, so they were given weights intended to reflect their seriousness relative to other offenses.

Source: 35, pp. 386-388

TABLE 50

COST PER CASE OF CORRECTIONAL ALTERNATIVES: PROBATION/PAROLE, INSTITUTIONALIZATION AND RESIDENTIAL COMMUNITY CORRECTIONS (IN 1977 DOLLARS)

	Per Capita Daily Cost				Average Length of Stay		Cost Per Client Treated		
	Very Short Run	Short Run	Long Run		In Days		Very Short Run	Short Run	Long Run
Adult Parole[a]	$2.40	$ 2.40	$ 3.42	x	365	=	$ 875	$ 875	$ 1,250
Halfway Houses	7.79	13.52	37.87	x	124	=	966	1,677	4,695
Medium-Minimum Security	3.87	15.80	74.96	x	96	=	372	1,517	7,197
Maximum Security Institution (Male)[b]	4.11	8.13	62.06	x	396	=	1,627	3,219	24,577
Adult Probation	2.40	2.40	3.42	x	365	=	875	875	1,250
PORT Projects (Male)	4.58	6.40	32.49	x	196	=	898	1,283	6,369
Medium-Minimum Security Institution	3.87	15.80	74.96	x	96	=	372	1,517	7,197
Maximum Security Institution (Male)[b]	4.11	8.13	62.06	x	396	=	627	3,219	24,577
Adult Probation[a]	2.40	2.40	3.42	x	365	=	875	875	1,239
PORT Projects (Female)	6.10	9.17	33.51	x	130	=	794	1,191	4,356
Medium-Minimum Security Institution	3.87	15.80	74.96	x	96	=	372	1,517	7,197
Maximum Security Institution (Female)	4.40	11.89	75.20	x	308	=	1,356	3,662	23,162
Juvenile Parole/Probation[a]	3.40	3.40	4.46	x	167	=	567	567	744
Residential Clients--									
No Prior Institutionalization	6.71	7.59	33.14	x	124	=	832	941	4,109
Prior Institutionalization	6.71	7.59	33.14	x	190	=	1,275	1,442	6,296
Juvenile Institutions[c]	3.68	15.39	74.91	x	190	=	699	2,924	14,233

[a] Costs averaged for metropolitan and nonmetropolitan area facilities (see Table 3).
[b] Costs averaged for two facilities.
[c] Costs averaged for two facilities.

Source: Computed based on 35, p. 391

NOTE: The duplications reflected above in program type are exactly as contained in the original source.

TABLE 51

COST PER REDUCTION IN RECIDIVISM FOR JUVENILE CORRECTIONAL ALTERNATIVES

CORRECTIONAL ALTERNATIVE	Cost Per Client Treated		Offenses Sustained Due to Treatment		COST PER REDUCED			COST PER REDUCTION IN	
					Offense Sustained	Offense Filed	Nonstatus Offense Sustained	Seriousness of Offenses Sustained	Severity of Offenses Sustained
Juvenile Probation									
Very short run	$ 567	÷	4.3	=	$ 132	$ 118	$ 203	$ 5	$ 91
Short run	567	÷	4.3	=	132	118	203	5	91
Long run	744	÷	4.3	=	173	155	269	10	120
Residential Clients--No Prior Institutionalization									
Very short run	832	÷	4.2	=	198	173	396	16	114
Short run	941	÷	4.2	=	224	196	448	18	128
Long run	4,108	÷	4.2	=	978	856	1,957	77	563
Residential Clients--Prior Institutionalizations									
Very short run	1,275	÷	6.2	=	206	319	1,593	28	187
Short run	1,442	÷	6.2	=	233	360	1,803	32	212
Long run	6,296	÷	6.2	=	1,016	1,574	7,870	138	926
Juvenile Institutions									
Very short run	699	÷	6.3	=	111	123	250	9	73
Short run	2,924	÷	6.3	=	454	513	1,045	38	464
Long run	14,233	÷	6.3	=	2,259	2,497	5,084	186	1,483

Source: 35, p. 394

Gray completes the analysis by considering the cost-effectiveness of alternative police options in light of the previous results. Table 52 (p. 199) presents this analysis of policy options (35, p. 396). As Table 52 illustrates, policy decisions can be converted into dollar terms. This outcome cost analysis can be extended further to better elucidate policy options, and to provide a basis for program budgeting. This extension consists of translating reductions in the number of non-status offenses sustained into direct costs, in a manner similar to that employed in Chapter II. Cost estimates are derived by using the Sellin-Wolfgang (11, pp. 1-10) estimates. Admittedly, these are fairly crude, but nevertheless constitute an analytical advance. Refinement through additional research could yield crime cost estimates, which combined with the methodology developed by Gray would raise the level of outcome costs, or cost-effectiveness, to a higher analytical plateau. However, if input and output cost estimates derived in Chapter II are compared, it can be seen that those estimates and the estimates contained in Gray are very close. Therefore, one could expect that the outcome cost results would be fairly close, also.

TABLE 52

POLICY OPTIONS TO MAXIMIZE THE EFFICIENCY OF CORRECTIONAL ALTERNATIVES (IN 1977 DOLLARS)

Correctional Alternatives	JUVENILE PROBATIONERS		RESIDENTIAL CLIENTS				JUVENILE PAROLEES	
			No Prior Institutionalization		Prior Institutionalization			
	Cost Per Client Treated	Cost Per Reduced Offense Sustained	Cost Per Client Treated	Cost Per Reduced Offense Sustained	Cost Per Client Treated	Cost Per Reduced Offense Sustained	Cost Per Client Treated	Cost Per Reduced Offense Sustained
Operate juvenile facilities at 90% capacity	$744	$173	$3,655	$870	$5,616	$ 905	$11,730	$1,862
Reduce length of stay in more expensive alternatives by 50%	744	173	2,054	489	6,296	1,018	7,116	1,133
Double client: staff ratios in more expensive alternatives	744	173	3,016	717	6,296	1,018	10,325	1,639

Source: Computed based on 35, p. 396

CHAPTER VII

POLICY ISSUES, POLICY IMPLICATIONS, AND RECOMMENDATIONS FOR ADDITIONAL RESEARCH

In this chapter, the policy issues and implications which have been examined are assembled and explored in greater depth. In addition, major gaps in past and ongoing research, as determined by an assessment of the research literature, are identified as areas where additional research is needed. Policy issues, policy implications, and recommendations for additional research are explored primarily in the order in which they have surfaced in this report.

IDENTIFYING THE EXTENT AND IMPORTANT CHARACTERISTICS OF PRODUCTION AND DISTRIBUTION OF SERIOUS JUVENILE CRIME

The recurring theme of this report has been that any research effort, no matter how sophisticated its design and how qualified its staff, ultimately is only as good as the data base it employs. As previously noted, only two major data sources are available for use in this report: the FBI's Uniform Crime Reports and the National Crime Survey, both of which unfortunately are characterized by substantial limitations. There is an obvious need for upgrading current data and for developing a new, more specialized, and more applicable data base.*

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*Uniform Crime Reports data could be significantly improved by the institution of a data auditing system. This system would establish and maintain uniform reporting definitions, and a stable population of reporting jurisdictions. The implementation of a procedure for departmental level data collection, or at least validation, by nondepartmental researchers, would help to quell the widespread criticism of biased police reporting.

The development of new reporting procedures and new data bases would prove most beneficial, if closely linked to the analysis of data-related deficiencies in juvenile justice system programming. For example, it does not take a serious juvenile crime researcher long to realize that there is a clear deficiency of programs specifically tailored to serious juvenile offenders. This is particularly true for repeat index crime juvenile offenders.

Thus far, public intervention has been considered to reduce the production of serious juvenile crime. Current public intervention practices, aimed at redistributing direct costs are characterized by the same general limitations and deficiencies as intervention programs targeted at reducing serious crime production. Similar deficiencies exist because of the lack of a direct linkage between data sources and research efforts, between research efforts and programs, and among programs themselves. Victimization data, for example, indicate that juveniles are victimized about ten times as often as the elderly. But, legislation and programs tend to focus disproportionately upon elderly victims.

Victim assistance and compensation programs, moreover, seem to exist largely because they are new upon the scene. They often are concerned with solidifying their often tenuous individual existences and do not emphasize coordination or interaction between programs. All three policy recommendations delineated above, therefore, hold for public intervention to redistribute the costs of serious crime, as well as public intervention to reduce the production of serious juvenile crime.

GENERAL LEVEL POLICY RECOMMENDATIONS AND RECOMMENDATIONS FOR ADDITIONAL RESEARCH

It is important at this time to consider the policy issues and the research "gaps" at the general program level for programs that are within and without the juvenile justice system. All programs considered operated to diminish crime production or more equally distribute the economic effects of serious juvenile crime.

The first issue to be considered is that of government operated versus privately operated programming. The cost data analyzed in Chapter IV suggested that privately operated programs tend to be less costly, on the average, than those that are publicly operated at the Federal or State level, when both have identical staff/juvenile ratios and services provided in-program. To the extent that privately operated programs employ low-wage personnel such as: college students, part-time staff, or volunteers, this cost differential will be increased. Whether privately operated programs are more effective than publicly operated programs, or the reverse, has never conclusively been established. Program structures and services do not often differ markedly between publicly and privately operated programs. Where such programs do differ is in certain variables which are typically not measured, and hence not included in outcome evaluation. These variables involve the enthusiasm and commitment on the part of staff, and the degree of rapport among the administration, staff, and participating juveniles. Consensus appears to be emerging that these factors are highly important. Hence, a dual recommendation for additional research emerges. These recommendations are: (1) that a systematically reliable research design be developed and that the aforementioned variables be tested; and (2) that relative cost-effectiveness analysis of publicly operated versus privately operated programs be undertaken.

An additional recommendation is that research should be carried out on the extent to which administrative "control" of program personnel and participants affects program outcome effectiveness in an effort to define a range of administrative control which contributes to maximum program outcome effectiveness.

Included in this effort would be an evaluation of the extent to which rigid administrative control procedures contribute to staff turnover and the extent to which staff turnover diminishes program effectiveness. Lastly, an evaluation effort of this type could also attempt to establish the extent to which enthusiasm and commitment can be transmitted from person to person, and if positive, develop a training structure to maximize such transfers. At the same time, a recruiting strategy could be developed to attract individuals with the most desirable personality traits.

Private programs recently have developed much faster than government operated programs in response to the funding availability for innovative structures tailored to specific victim or offender needs. Up until now, however, the majority of available funding has been targeted for non-secure offenders. As previously noted, when judges or correctional authorities wish to place serious offenders in private programs, many such programs balk at such a placement. One strategy which emerges from these experiences is that funding should be made available and targeted specifically to initiate programs which would serve serious juvenile offenders. One step further would be to prioritize certain groups of serious offenders for the treatment programs such as: offenders with learning disabilities, or offenders determined to be emotionally disturbed. Jurisdictions with very few serious offenders could pool the available resources and collectively publicize the availability of such funding. Such a cooperative effort would be especially economical among those jurisdictions which are against mixing female and male serious juvenile offenders in the same program environment. This might help eliminate the high cost of processing serious female offenders which is largely due to their small number.

Two policy recommendations surfaced during the assessment of outcome and outcome cost program evaluation. The first has to do with the relationships between program design and program outputs, and program inputs, outputs, and outcomes. Programs should be *designed* so that program outputs ultimately produce outcomes; *structured* so that inputs produce desired outputs and outcomes; and yet be *flexible* enough to allow for "fine-tuning" adjustments which should yield greater economic efficiency. Also, to the extent that it does not conflict with economic efficiency, processing efficiency may also be introduced.

The second policy recommendation has to do with program budgeting. Program budgeting decisions should be made primarily on the basis of relative *outcome* cost or cost-effectiveness. *Output* cost should be used as a determining variable only when outcome effectiveness is unclear or when two or more programs are similar in outcome effectiveness.

POLICY RECOMMENDATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH SPECIFIC TO JUVENILE JUSTICE SYSTEM PROCESSING

The remaining policy recommendations and recommendations for additional research are specific to programs engaged in processing serious juvenile offenders. These recommendations are presented by processing function area.

Police Processing Recommendations

Police resources should be concentrated in patrol and other police functions directed at crime prevention rather than for follow-up investigations for reported crimes. Investigation, when it does take place, should focus on those crimes determined most likely to be solved. Such crimes would be those characterized by the most relevant information collected during patrol investigations. Investigative resources also should be deployed among those most solvable crimes on the basis of the relative direct costs imposed. Hence, investigation should focus *first* on violent crimes, then on serious property crimes, and finally on all other crimes.

Similarly, police patrol and other crime prevention resources should be deployed among the areas and functions on the basis of relative direct costs imposed. In other words, such police resources should concentrate their activity in those areas in which the highest aggregate direct crime costs are incurred by victims. In such areas, it is expected that police would effect the greatest reduction in crime cost, their most primary function.

Court Processing Recommendations

Court processing is unique among function areas since it is at this point in the system that the offender's rights are most closely insured and protected. In other words, it is court processing that seeks to "minimize opportunity cost" to the juvenile charged with or convicted of serious crime, as compared to police, detention, and correctional processing functions. Yet, there must be a balance struck between minimizing costs to the juvenile and minimizing costs to the community. Two common court practices, however, appear to impose greater costs to the community in the course of trying to minimize opportunity costs. The first practice has to do with the restrictions on maintaining records of juvenile offenses, no matter how severe. This practice is undoubtedly warranted for minor offenses given the extent to which a police record precludes many economic opportunities (e.g., employment). However, when a violent crime has been committed, the sheer amount of direct costs imposed would warrant the record keeping, including photographing and fingerprinting of such juveniles. However, provision could make for the destruction of police records upon adulthood for those juveniles who have not committed two or more violent offenses. But, for those juvenile offenders displaying continuing serious crime activity, records should be kept and sustained upon adulthood. It is economically unjustifiable to allow a relatively small number of juveniles to continuously impose enormous costs upon the community. It is particularly unjustifiable, from an economic view, to base the dispositional decision exclusively on whatever information has been assembled for the crime alleged to have been committed, especially when it has been demonstrated that past offense activity is an important indicator of future criminal activity.

Detention Processing Recommendations

Decisions to detain juveniles are primarily made, at least by decree of the courts, on the basis of the probability that a juvenile charged with a serious crime will appear in court. Once again, as in court processing, a concern for the community should be taken into account. In many detention decisions, rather than there being a balance struck between the opportunity cost to the juvenile charged and the concern for minimizing cost to the community, there appears to be an imbalance with the tilt in the offender's favor. Such an imbalance is economically untenable. At the very least, the current unbalanced state of affairs should be the subject of considerable inquiry with the community drawn into the assessment process.

Correction Processing Recommendations

Most of the general policy recommendations and recommendations for additional research made earlier in this chapter apply primarily to correctional programs, since corrections is the function area where most of the programs exist which process primarily serious juvenile offenders. Also, the corrections function is where most of the recommended programs reside. But, there is one policy recommendation which applies specifically to corrections processing programs. It ties in very closely with the two previous policy recommendations. This recommendation is that there should be a centralized authority at a large or pooled jurisdictional level to monitor the activity of serious juvenile offenders. All costs attributable to an individual offender should be tabulated. These costs could include the estimated direct cost imposed by additional crimes for which the juvenile has been arrested or convicted. To include such direct costs at this time probably would not be very accurate or politically feasible. But certainly costs in the form of governmental outlays should be tabulated. Such costs would include costs of non-secure processing; costs of additional arrests, detention, and court processing; costs of victim compensation (both through explicit compensation programs or through general public compensation mechanisms such as unemployment compensation). All such government expenditure costs should be included in the tabulation and contrasted with average secure processing costs over an equal period. From an economic standpoint, if tabulated costs exceed the costs of secure processing, the juvenile should be transferred to a secure setting. Once again, there ought to be a balance struck between the concern for the offender, based on opportunity cost, and the concern for the community, based on the costs imposed.

A FINAL, FREE MARKET RECOMMENDATION

Earlier in this chapter, it was recommended that various crime prevention intervention strategies be researched and developed. Beyond these intervention strategies lie non-intervention possibilities for reducing crime targets and potential crime situations. One such strategy is moving to an increasingly cashless society. For example, evidence demonstrates that robberies involving the elderly peak during the beginning of the month when social security checks arrive. The expanding social security and banking industry policy of directly transferring payments to bank accounts significantly reduces crime opportunities. Also, however, new opportunities are created with greater potential for monetary gain through computer theft. But losses associated with such crimes are more than offset by the potential reduction in direct costs associated with the instances of robbery and assault incurred by the elderly that could be saved. Similarly, the increasingly widespread policy on the part of gas stations not to make change during nighttime operations also reduces crime opportunities. As such, crime opportunity reduction appears to offer tremendous potential for diminishing the direct costs of serious crime. Such strategies ought to be explored in greater depth in the future.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

This report has been concerned with assessing the economic impact of serious juvenile crime. Economic impact was defined as a disruption caused by serious juvenile crime in the existing patterns of production, distribution, and consumption of goods and services. Economic impact was divided into direct and indirect costs of serious crime.

Direct costs comprise: (1) net (or uncompensated) costs incurred by the victim because of the serious crime committed, including monetary loss and the cost of physical and psychic injury; (2) costs of psychic injury incurred by a witness to the commission of a serious crime; (3) net monetary costs and psychic costs of the victim's participation in subsequent juvenile justice system processing; and (4) net costs to the witness of participation in subsequent juvenile justice system processing.

Indirect costs comprise: (1) the cost of increased household expenditures caused by increased consumer prices and the cost of residential and personal security; (2) the costs of taxes for the public compensation of victims and witnesses through specific compensation programs and public compensation mechanisms, such as unemployment compensation, and finally, the cost of processing juveniles charged with or convicted of a serious crime; and (3) the cost introduced by diminished property values in crime ridden neighborhoods. Each of the different types of costs were explored and estimated in this report, but the focus of the effort was on determining the direct costs of crime and the indirect costs associated with juvenile justice system processing costs.

The different approaches which exist for estimating primary direct costs were collapsed into seven categories:

(1) A discounted present value of net future earnings approach;
(2) A human capital approach, evaluating life based on the education, vocational training, experience, and adaptabilities that the individual has personally vested;
(3) Estimating net losses incurred by victims, witnesses, and their families;
(4) Examination of the implicit values placed on injury, or loss of life by the political (legal) process;
(5) Examination of injury or threatened injury as determined in victim compensation programs;
(6) Imputation of the value of injury, or the loss of life, by an examination of the individual willingness of a person to avoid or pay to avoid risky, potentially injurious, or fatal situations; and
(7) Imputation of direct costs by means of econometric analysis.

Each of these approaches was analyzed in terms of its merits and limitations, particularly the econometric approach. As a result, an extensive economic model was developed. All of the approaches, including the econometric approach, failed to result in reliable and comprehensive direct cost estimates. An estimation methodology was subsequently developed by matching the most reliable cost estimates for certain serious crimes to the Sellin-Wolfgang Crime Index. This effort generated a logarithmic function and yielded cost estimates for each of the serious crimes. Utilizing these individual estimates, aggregate data estimates were derived for total serious crime on a national level and for serious juvenile crime. Total serious crime costs in 1976 were estimated at approximately $35 billion (in 1977 dollars). Serious juvenile crime costs were found to amount to 28 percent of that figure (or $9.8 billion). Indirect costs, excluding juvenile justice system processing costs, were estimated at the household level. These indirect costs are comprised of increases in consumer prices amounting to $404 annually. Indirect costs introduced by increased taxes were found to be negligible on an annual basis. Indirect costs introduced by diminished property values, however, were found to be substantial, particularly in those neighborhoods characterized by very high levels of serious crime.

The economic impact of processing juveniles charged with or convicted of serious offenses was estimated and analyzed on several different levels: (1) average costs, in the form of input and output costs; (2) output and output effectiveness; and (3) outcome costs or the level of cost-effectiveness.

Costs of correctional processing of juveniles were analyzed most extensively at the first level (i.e., input and output costs). It was found that both input and output costs increase dramatically as one proceeds along a continuum based on the amount of security. For example, residential facilities are more costly than nonresidential facilities. The cost difference, however, must be weighed against the possible reduction in crime commission, and therefore crime costs, that can be realized by isolating the offender from society.

In Chapter V, differences between output or process evaluation and outcome evaluation were explored in depth, as were problems in the design and undertaking of both. The different purposes of evaluation and the types of evaluation design were also explored. The outcome effectiveness of juvenile justice system processing was subsequently assessed, beginning with the juvenile justice system as a whole (with a focus on deterrence and incapacitation), and then a separate analysis of each process area. Several programs processing primarily serious juvenile offenders were described and assessed in terms of their individual outcome effectiveness.

The current state-of-the art of outcome cost or cost-effectiveness analysis lags substantially behind simple cost analysis and simple effectiveness analysis. The assessment of outcome costs or cost-effectiveness focused on the deficiency in past and current analytical efforts and developed a recommended strategy for the continuing evolution of reliable and usable outcome cost analysis information. The principal policy recommendations emerging from this assessment are as follows:

- Existing data bases should be evaluated and refined, new data bases should be designed and established, and research efforts should be undertaken to identify factors which contribute to serious juvenile crime production. The types of questions that the research efforts address should determine data needs, and the types and quality of data should determine the extent of validity of consequent research conclusions.

- Programs should be established which are specifically concerned with reducing serious juvenile crime and which are specifically tailored to correcting environmental or individual deficiencies determined to result in serious juvenile crime production.

- A systematically reliable design should be developed and implemented to test the extent to which inputs and outputs contribute to outcome effectiveness.

- Funds should be targeted for processing specific groups of serious juvenile offenders as a means of encouraging the emergence of privately operated programs. Small jurisdictions could pool available resources for treating serious juvenile offenders. Such a policy would be particularly cost-effective for female serious juvenile offenders whose numbers are typically low in comparison to male and serious offenders.

- Police resources should be allocated among activities and areas within the jurisdiction on the basis of the estimated aggregate serious crime costs imposed.

- A balance must be struck between the cost incurred by (or for) the offender and the costs incurred by the community.

- Finally, various free market strategies for reducing crime targets and potential crime situations should be expanded and new strategies devised. Existing strategies include automatic transfer of social security payments to participating bank accounts and gasoline station policies which require exact change or credit cards for nighttime purchasing transactions.

APPENDIX A

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APPENDIX B

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REFERENCES

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APPENDIX C

FOOTNOTES AND COMPONENTS FOR ESTIMATES OF EXTERNAL COSTS ASSOCIATED WITH DRUG DIVERSION REFERRALS

FOOTNOTES AND COMPONENTS FOR ESTIMATES OF EXTERNAL COSTS ASSOCIATED WITH DRUG DIVERSION REFERRALS (TABLE 43, p. 213)

[a] Costs per client year and costs per client not necessarily comparable because they come from two different sources.

[b] Drug-Free Residential Communities are modeled after Synanon, Daytop, and Phoenix House, therapeutic communities (TC) which are communal, residential, and drug-free. They attempt behavior modification in a strict and highly structured atmosphere. The typical activity has one in-house resident counselor and eight other counselors; personnel accounts for 63 percent of the total budget. Other budget items include psychiatric counsultants, 3 percent; travel for staff and clients, 2 percent; equipment, 4 percent; medical intake exams, 2 percent; utilities and communications, 3 percent; rent and renovation, 7 percent; food, 13 percent; training and lab testing services, 3 percent.

[c] The typical outpatient abstinence clinic is designed to treat 200 patients and is open seven days a week, eight hours a day, with an average of three visits per week per client. No medication will be dispensed in this unit. Because polydrug abusers attend the clinic, professional counseling is especially necessary. Staff includes an administrator, secretary, clerk typist, half-time psychiatrist, a clinical psychologist, psychiatric social worker, vocational rehabilitation specialist, and six counselors. Personnel costs account for 64 percent of the total budget. Other budget items include medical consultants, 2 percent; staff and client travel, 2 percent; equipment, 2 percent; intake medical exams, 10 percent; utilities and communications, 1 percent; rent, 4 percent; supplies, 3 percent; training, 1 percent; and lab services, 13 percent.

[d] The typical day-care drug-free projects treat 40 clients and operate six days a week for 10 hours per day. It is a structured but nonresidential setting geared to redirecting life,

emphasizing employment or education for employment. Activities include individual counseling and encounter group therapy three times a week, daily vocational readiness seminars with family therapy and individual vocational counseling as needed. Each client has a job assignment, for example, food preparation. Enrollment in educational or job training programs or employment begins typically within 90 days. At that time, the client participates in weekly groups and individual counseling as needed until satisfactory adjustment to the community has been made. The costs of client lunches, therapy, family counseling, and educational and vocational services are included; the costs of services provided by community health and legal aid programs to which the clients may be referred are not. Staff includes an administrator, secretary, three counselors and one vocational rehabilitation specialist. Personnel costs account for 67 percent of the total budget. Other costs are medical consultants (4 hours per month), 1 percent; local travel for clients, 1 percent; equipment, 4 percent; intake medical exams which are contracted, 5 percent; utilities and communications, 3 percent; rent, 6 percent; food, 8 percent; and lab services, 6 percent.

[e] Range in cost is due to economies of scale. The more costly serves 100 clients; the other 300. Both centers are open seven days a week. Staffing patterns satisfy FDA regulations and shares of budget items are as follows:

300 Clients

Item	Share of Budget
Personnel	
2 administrators	71%
secretary	
clerk typist	
1/2 time doctor	
4 nurses	
1/2 time vocational specialist	
4 counselors	

100 Clients

Item	Share of Budget
2 administrators	65%
secretary	
clerk typist	
doctor	
6 nurses	
vocational specialist	
10 counselors	

Item	Share of Budget
psychiatric consultants	2%
travel	1%
equipment	1%
medical exams	6%
communications and utilities	1%
rent	4%
supplies	3%
training and lab services	11%

Item	Share of Budget
psychiatric consultants	3%
travel	1%
equipment	2%
medical exams	10%
communication and utilities	1%
rent	3%
supplies	3%
training and lab services	11%

[f] Residential methadone maintenance, unlike the drug-free community, is geared for fairly rapid turnover; after an average of five weeks the client is back in the community while continuing in an outpatient methadone maintenance clinic.

The typical residential program is designed for 48 clients. It operates seven days a week, 24 hours a day, and provide detoxification, maintenance, individual and group therapy, family counseling, and vocational services on site. Each client has a job assignment, for example, housekeeping. Emergency medical services are available, but the initial physical exam will be contracted out. Needed legal services are referred to a community legal aid agency and are not covered in this budget. Within a month to six weeks of employment, each maintenance client returns to the community to live and receives methadone from the clinic as an outpatient. The staff includes an administrator, secretary, two nurses, one full-time, the other one day a week, three counselors, and one vocational specialist. Personnel costs account for 59 percent of the budget. Additional items are as follows: 4 hours per week for medical consultants, 2 percent; travel and training, 1 percent; equipment, 5 percent; medical exams, 2 percent; utilities and communications, 3 percent; rent and renovation, 9 percent; lab services, 3 percent; and food, 16 percent.

[g] As defined in footnote[b] above and similar to it in the structure of the budget. Based upon survey of drug-free residential communities in Baltimore, Charleston, Chicago, Gary, Watts

(Los Angeles), Miami, New Orleans, San Francisco, and South Alameda County, California.

[h] As defined above in footnote[c] and similar to it in budget structure. Based on survey of outpatient abstinence clinics in cities listed in footnote[g] above.

[i] As defined in footnote[e] above and most similar to budget structure of center for 300 clients. Based upon survey of outpatient methadone centers listed in footnote[g] above.

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